FEEDSTUFFS

The Weekly Newspaper for the Feed Industry

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Executives Air Sales Problems At AFMA Event

ST. LOUIS — The first full-scale gathering of feed sales executives attracted an attendance of 103 men representing 64 companies, officials of the American Feed Manufacturers Assn. reported.

The conference, sponsored by the AFMA's Sales Executives Council, was held at the Sheraton-Jefferson Hotel Sept. 29-30. The "workshop" type gathering permitted wide audience participation in the discussions of problems shared by the sales executives. Also, ample time was provided for "get acquainted" sessions.

Attendance at this first session was limited to two representatives from each feed manufacturing company. Reaction to the gathering has been such that it is quite possible similar sessions will be held each year, AFMA officials said. Suggestions and criticisms of the program are being sought from participants as an aid to future planning.

The program included a report by R. E. Miller, general sales manager, Beacon Milling Co., division of Spencer Kellogg & Sons, Inc., Cayuga, N.Y., and chairman of the council's executive committee; a concise description of AFMA activities and panel discussions on these topics: The National Feed Merchandising Plan, marketing concept, economic and market research, marketing of poultry and eggs and sound financing.

USDA Ends Turkey Buying for Schools

WASHINGTON—The U.S. Department of Agriculture has stopped buying frozen turkeys for distribution to schools participating in the National School Lunch Program, according to a recent announcement.

Final bids were accepted Oct. 2. USDA announced a total of 3.84 million pounds of frozen ready-to-cook turkeys were purchased in the last week.

This last turkey purchase brings the total bought for the program to 21.5 million pounds at a cost of about $7 million.

USDA also purchased 4,380,000 lb. of turkeys the previous week from

(Turn to TURKEYS, page 99)

Edible Oil to Carry Oilseed Price Load

By JOHN CIPPERLY
Feedstuffs Washington Correspondent

WASHINGTON — Make no bones about it, U.S. Department of Agriculture policy is bullish on edible fats and oils, notwithstanding a huge indicated supply. USDA is standing in the market place like an entrenched stubborn bull, unwilling to let go of its stock of oilseeds, or such quantities of edible oils that it may take over under the warning announcement of its cottonseed oil program issued this week.

Last year in its cottonseed price support program, USDA used the meal market as a lever to maintain prices. This year, while final decision has not been made, it is evident that USDA officials now sense their influence in the edible oil and lard markets.

As things stand at this time, edible fats and oils will carry the freight for cottonseed and soybeans. Last year meal prices maintained oilseed crushers margins. This year oils will do the job on the basis of policy outlines expressed here this week by influential officials at operating levels.

This week USDA beat the gun on its cottonseed oil problem by a forthright announcement that it would enter into a toll crush arrangement with cottonseed crushers, whereby the crushers would retain the by-products other than the oil, which would be made available for the Commodity Credit Corporation on a tender basis by the crushers. (See story on page 4.)

The new USDA policy this year on tenders of cottonseed oil will be tight. They will close the gap which existed last year when a foreign buyer grabbed off a fat chunk of cottonseed oil from CCC stocks at a bargain

(Turn to EDIBLE OIL, page 8)

Pennsylvania Event Reflects Awareness of Ag Changes

By PAUL L. DITTEMORE
Feedstuffs Staff

YORK, PA.—An awareness of the profound changes taking place in agricultural production, coupled with a determination to adjust their operations to meet the challenge of a changing agriculture, was evident at the 81st annual convention of the Pennsylvania Millers & Feed Dealers Assn., held here recently.

Robert I. Aten, D. D. Fritch Milling Co., Macungie, Pa., in his presidential address of welcome, emphasized the need for the association to maintain its "forward look" by citing the many activities of the organization during the past year. A series of regional meetings at which informal round-table discussions were held featured the activities.

Many of the changes in agricultural production which are having a direct effect on the feed manufacturing industry were listed by Alvin E. Oliver, executive vice president of the Grain & Feed Dealers National Assn. In his address, Mr. Oliver said that the feed and grain trades have numerous common problems and urged the feed manufacturers to ask themselves two questions: "What are the changes taking place that will affect me?" and "What am I going to do in my own plant to adjust my operations to those changes?"

Changes

Among the changes mentioned by Mr. Oliver were the government's grain exporting program and its effect on transit rates, the changing pattern in feed distribution, the effect of contract farming, integrated operations, the country's population shifts and loss of agricultural acreage to urban expansion.

"How Much Government Does Agriculture Need?" was the title of the address of Rep. Paul B. Dague, Pennsylvania's 9th district congressman.

(Turn to PENNSYLVANIA, page 102)

Dehydrated Alfalfa Strength Develops

KANSAS CITY — Considerable strength developed this week in dehydrated alfalfa, and prices were marked up $2 ton for shipment next week. All sellers seemed equally firm in their ideas and Kansas City base price moved up to $46 for bulk pellets and $51 for sacked meal.

Several factors contributed to the strength. The producing season apparently is going to terminate earlier than usual this year. Dehydrators have less than the normal amount of stocks in store for this time of year. A third factor is the development of some export buying this week.

Export sales amounted to about 3,700 tons, some sold for September and some for October-December shipment. Movement was both to South America and Europe, the latter shipments being stimulated by drouth conditions in some areas.

Recent rains have been heavy in Nebraska and Kansas, and have been accompanied by cold weather and some frost in spots. However, it is doubtful if the moisture will have much effect on production this year.

The American Dehydrators Assn. in a recent bulletin says: "These rains are a little late to do a great deal for fall production unless October is an unusually warm and open month. The greatest benefit will be to new seedings. October production for the entire U.S. seldom runs to as much as 100,000 tons. We see nothing in the picture now to indicate any unusually large October tonnage. A recent survey of the Platte Valley of Nebraska seems to indicate that the first freeze date will not be a limiting factor on production. Many dehydrators will be through before hard frost hits."

Ingredient Meeting Speaker Asks Caution on Additives

By GEORGE L. GATES
Editor of Feedstuffs

CHICAGO — While there is no doubt that feed additives have made a great contribution to improving performance and general health of livestock, certain precautions must be "stamped in bold face letters" so that progress in this field of research and application will have a true and permanent value.

This warning was sounded by Dr. W. M. Beeson, department of animal science, Purdue University, at the convention of the National Feed Ingredients Assn. Oct. 1.

"Often the scramble for something new and different precedes the basic facts essential for scientific evaluation," Dr. Beeson said. "There is no magic involved in biological response. Life is controlled by biological and physical laws which respond according to a certain pattern established by known and unknown phenomena. The test tube synthesis of life has not been accomplished, but the destruction of life is relatively simple.

"Too much emphasis has been placed on the end result and not enough pressure and encouragement on the fundamental cause. A good example is antibiotics—widely used—but as yet no one knows exactly how they function.

"Unless we place more emphasis on the fundamental mechanisms of how biologicals function, man may destroy the livestock that feeds him through his own ignorance."

Dr. Beeson's general comments preceded his evaluation of the present status of feed additives.

About 125 feed men and ingredient suppliers registered for the two-day NFIA gathering. Other first-day ac-

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FEEDSTUFFS *Features This Week*

SWINE PRODUCTION: Owners of a "hog motel" in Illinois size up their operation after five months of experience. **Page 18.**

CONTRACT FEEDING: An Alabama feed firm's diversified contract feeding program is described on **page 28.**

ARSENICALS: Research in the use of organic arsenicals as feed additives is reviewed in an article on **page 38.**

EGG INTEGRATION: An example of owner-integrated production and marketing of eggs as found in a Mississippi operation is described on **page 50.**

POULTRY EXCHANGE: Arkansas' poultry exchange appears to be on the road to success. **Page 62.**

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FEEDSTUFFS

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Top of the Hopper

SOME PEOPLE HAVE SAID that the poultry business never will get on a really stable basis until there is more merchandising on a brand basis. Perhaps the continued low broiler prices will result in increased interest in development of new poultry products sold under private brands. Harold Williams, president of the Institute of American Poultry Industries, had some comments on this sort of thing at the recent Dixie Poultry Exposition:

"Operators in the poultry industry have done a magnificent job of cutting and eliminating costs to produce a high-quality chicken or turkey at low costs. If I were to say that you may become as much concerned in incurring new and additional costs in the future as you have been concerned in eliminating costs in the past, what would you say? But, value would be added to the product—value in the eyes of the consumer. . . . Further processing of poultry products can build in product differences and superiority as well as added value. Private brands can identify these superior and different products. These new products can create uses for poultry and help to expand total consumption, thus lifting poultry out of the commodity level up into the specialty goods level. It costs money to develop private brands, but they can be your means of generating income."

SPEAKING OF BROILER PRICES, the past week has seen a further drop of about 1¢ lb. in already low levels, and prices are down around 14¢ and in some cases 13¢ in some of the major broiler areas. The immediate outlook is not very encouraging, either. Some economists expect the market into December to do no more than move sideways at the low levels. They feel the industry probably is about at the low point but that little or no improvement is likely for some time yet. Bigger supplies of red meat at lower prices are one of the main problems for the broiler industry. Another is that consumers apparently become so accustomed to low chicken prices that they decline to buy at other than very low levels.

WHILE ON THE SUBJECT OF PROBLEMS in the poultry and feed industries, one might note the USDA report pointing out that even the very low egg prices this year apparently have not brought an increase in per capita egg consumption. Figures show that per capita disappearance of shell eggs in June-July was below last year and the lowest on record—despite the lowest egg prices in many years. Apparently this is part of an over-all situation which has seen a general decline in egg consumption, attributed at least in part to changes in breakfast menus and changing food habits.

THE CATTLE FEEDING BUSINESS seems to be about as fast moving as any segment of the feeding-feed industry economy these days. Feedlots continue to increase in number and size, and a good many feed firms apparently are closely involved directly or indirectly in some of the larger operations. A number of feed manufacturers, as well as dehydrators, have been building or operating their own feedlots. In other cases, groups of feeders are getting together and building their own feed mills, frequently including pelleting facilities. In at least one case, it is reported, a group of feeders built a feed plant and then arranged for a feed company to operate it for them. In other cases, some feed firms have close arrangements in providing feed for good size nearby feeders.

When one compares the total amount of feed that a steer consumes with that eaten by a chicken, one can see better why there is so much interest in

(Turn to TOP OF THE HOPPER, page 99)

How's Business?

AN EVERY WEEK REVIEW OF FORMULA FEED BUSINESS VOLUME, INCLUDING PRICE, SUPPLY AND DEMAND TRENDS

The major development in the feed industry this week was on the ingredient side. Substantial price hikes were made in oilseed meals, especially soybean oil meal, and millfeeds. Manufacturers of formula feeds report that they will follow this move with feed price increases of $1@2. The change is the result of the ingredient development alone. Demand increase in formula feeds has not been enough, compared with last week, to bring about a price lift. The formula feed outlook looked brighter, however, from the standpoints of higher egg prices, stronger milk markets and declines in hog marketings. This week's index of wholesale feedstuffs prices was an advance of 2.2 points from last week's to 76.1. A year ago the index was at 83.2. The feed-grain index stood at 64.3—1 point above the week before, but 1.5 points below a year earlier. The hog-corn ratio climbed to 12.2 this week from last week's 11.7. A year ago the ratio was 16.9. (Ingredient prices in detail on pages 100-102).

Northwest

Formula feed prices are going up again in this region even though demand for mixers' products this week was not much better than last week. As elsewhere around the nation, the anticipated price jump of $1@2 will be the result of substantial gains in the markets for millfeeds and soybean oil meal.

In general, this week's business was up from a week earlier, but most manufacturers reported that the volume was still behind the same period of last year. Most of the blame was put on depressed livestock and poultry prices.

Turkey feed business is still good, but growers will soon start sending their birds to market for the holiday season. Hog feed volume remains at a fairly good level despite further dips in hog prices this week. Egg feed business was good for at least one manufacturer. Dairy feed volume is fair, but beef cattle are slow going into feedlots, so there isn't much improvement in that quarter as yet.

Representatives of several plants reported that their order backlogs are bigger than they have been for quite some time.

Southwest

Most feed manufacturers rated sales this week as about on a par with the previous week, although a few indicated a slight dip in business was apparent to them. There was no particular feature to the sales picture, with business running along in the customary seasonal groove.

Colder weather hit the western sections of the Southwest this week and there was considerable snow in the higher altitudes. Rains were heavy elsewhere. This did nothing for retail feed trade this week although some manufacturers noted a bit of an upswing in cattle feeds which they attributed to the inclement weather.

Running time was about the same as in the previous week, averaging five days of full labor. Prices were strong during the week, particularly because of higher millfeeds, alfalfa and soybean meal. Most price cards were marked up $1@2 ton, but the advances would have been $3 to $4 if the feed miller had followed the full advance of the market.

Northeast

The formula feed market remained in the doldrums this week. Mill running time held at a comparatively low level because, one trade spokesman said, there are "just too many feed mills for the amount of business available."

Feeds to mix on the farm have been well taken because farmers have had good crops to provide roughage, but complete feeds have lagged. The trade feels, however, that farmers will come into the market soon for enough feed to last their cattle for two or three months.

Egg prices are up and milk continues to bring a good return, but broiler prices are depressed and likely to remain that way until January. Broilers in the major Eastern growing areas were off 1¢ lb. to 14@14½¢.

Feed manufacturers are hoping that egg mashes and dairy feeds will offset the already noticeable drop in turkey and broiler feed demand.

The ingredient market showed buoyancy during the week.

Running time of formula feed manufacturers last week held at 32 hours, unchanged from the preceding period.

Southeast

Southeastern feed demand continues about unchanged from some sections to slow in other parts. Most feed mills report their running time as being about steady.

Southern farmers last week experienced sharp price declines in cattle and calves as much as $1@3 cwt., and broiler prices were off 1@1½¢ lb. North Georgia broiler prices were quoted mostly at 14¢ lb., f.o.b. the farms. Most of the southeastern states continue to cut back on their chick placements.

With fair weather and good supplies of corn coming to the market, prices have now declined to $1.25 bu., delivered into the North Georgia broiler producing area.

Slow movement of cottonseed to mills and heavy export interests helped to advance cottonseed meal $2 ton in the Mississippi Valley and $1.50 @2.50 ton in the Southeast.

Most feed ingredient buyers continue to buy their major proteins on an as-needed basis, as many believe we will see lower prices the latter part of this month.

With heavy supplies of citrus pulp in storage, and with some producing mills commencing operations on new crop grapefruit, citrus pulp is now being offered at from $30@32.50 ton f.o.b., producing plants, with very little moving at this time due to good pastures from Florida to the New England states.

Central States

Broadly speaking, there has been no material change in the formula feed industry from last week—or for that matter, for any very recent week going back to around the middle of the summer. While there have been a few exceptions, mixed feed manufacturers generally are in agreement that business is not as good as it was a year ago. Most of the industry is still working on a five day week, but here, too, there have been departures with some operating on a four-day week basis. Backlogs are being eaten into at a steady pace.

(Turn to MARKETS, page 105)

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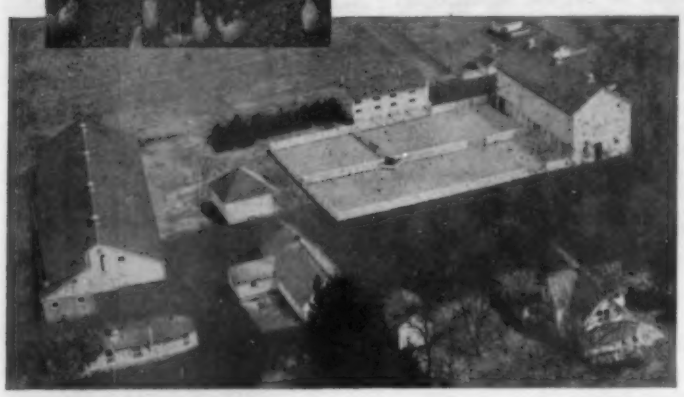

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Standby Disposal Plan For CCC Cottonseed Announced by USDA

WASHINGTON—The U.S. Department of Agriculture has announced a standby disposal plan for any cottonseed which may be acquired by the Commodity Credit Corp. under 1959-crop price support operations.

The operating details of the plan are similar to those for 1958-crop cottonseed, except for a requirement insuring prompt delivery of cottonseed oil to CCC after receipt of seed by crushers. The plan will become effective only if market prices for cottonseed decline below support prices in an area.

Under the plan any cottonseed received will be offered to crushers on a competitive bid basis, crushers to pay support price for the seed, f.o.b. gin or other delivery point, to keep all of the products except the oil, and to submit bids on the prices at which they will sell to CCC the oil produced from the seed.

USDA officials explained that the plans are being held on a standby basis, as cottonseed is now selling close to or above support prices in all areas. They also stated that prospective export demand for cottonseed oil is greater this year than last.

Cattle Ranchers Offer To Finance Feeding

VALENTINE, NEB. — Many Nebraska and South Dakota cattle ranchers attending a recent meeting in Valentine stated that to anyone having feed and facilities and meriting credit, they would sell their cattle and carry back the full purchase price at 5% interest, according to a report from W. B. Quigley, secretary of the Cherry County (Neb.) Cattle Assn.

This action, it was indicated, was taken because of reports that some feeders were having trouble getting financed.

"Many ranchers also stated they had faith in the fat cattle market, and would be interested in making a cattle feeding deal. Several said they already had put cattle in commercial feedlots. It appeared that ranchers are showing a strong interest in feeding to finish their own cattle," the association report noted.

The meeting was called for the purpose of discussing range and feed conditions, and cattle prices, present and future.

The association quoted an economist as saying his opinion was that both fat and feeder cattle prices were on the way up, and "could be a good $3 cwt. higher by Nov. 1, and will continue strong."

All ranchers present agreed that heavy rains the past two months have insured ample range and feed for this fall and winter, and also for spring grass. A number present stated they had decided to winter cattle that they had intended to sell.

Plant of Union Bag Damaged by Fire

CHICAGO—Damage estimated at $100,000 was caused by a fire that swept through the plant of Union Bag-Camp Paper Corp. here Sept. 27.

The fire reportedly started among piles of corrugated paper in a storage yard adjacent to the building and then spread to the half-block-long structure. A warehouse in the plant contained 2,500 tons of corrugated paper in rolls.

CHARTER GRANTED

TOPEKA, KANSAS — Blue Stem Feed Yards, Inc., Emporia, Kansas, was granted a charter recently, with capitalization of $250,000 authorized. George Stallwitz, Wichita, was named resident agent.

F. H. Blough

E. D. Griffin

ALLIED MILLS OFFICIALS — Allied Mills, Inc., Chicago, has elected E. D. Griffin to the board of directors, to succeed the late J. J. Quinlan, former board member and executive vice president. The election took place at a recent Allied Mills stockholders meeting in Chicago. At a meeting of the board, following the stockholders meeting, F. H. Blough, assistant general production manager, was elected vice president and general production manager. Leo T. Murphy, chairman of the board, and J. Leroy Welsh, president, Butler-Welsh Grain Co., Omaha, Neb., were reelected to the board. (For more details, see Feedstuffs Sept. 26, page 110.)

Abbott Reduces Vitamin K Price

NORTH CHICAGO, ILL. — Abbott Laboratories has announced a new, reduced price schedule on its synthetic vitamin K product for feed, Klotogen F.

"Continuing product improvements, plus economies in packaging and handling, have enabled up to lower our costs," explained Robert W. Nichols, manager of the chemical marketing division. He pointed out that Abbott's new 16-gram Klotogen F premix, in a soybean oil meal carrier, is now available for as little as 2¾¢ per gram of activity. It is packed in 50-lb. multiwall bags.

Supplies of the Klotogen F premix are now available from the following Abbott branches: Atlanta, Baltimore, Boston, Dallas, Kansas City, Memphis, Minneapolis and San Francisco. It may also be obtained from the company's headquarters in North Chicago.

R. D. Willasson Forms Own Sales Company

OMAHA—R. D. Willasson, formerly with the W. P. Mann Sales Co., has announced the formation of his own company, the R. D. Willasson Sales Co., at Omaha.

The new company will handle vitamins, antibiotics and taste products, was well as other feed additives. With headquarters in Omaha, Mr. Willasson will be traveling throughout Iowa and Nebraska.

FEEDER PIG SALE

CORNING, ARK. — Northeastern Arkansas Livestock Marketing Assn. will offer 1,000 feeder pigs for sale at Corning, Oct. 19. This will be the first of a series of feeder pig sales to be conducted by cooperatives at Dardanelle, Fayetteville, Imboden and Marshall.

SCIENTIFIC SLEUTHING

Scientific sleuths who regularly look for the nutrition research reporting and commentary in the "Putting Research to Work" department in Feedstuffs would have to do some extra sleuthing to find it this week. So here is a helpful hint: Dr. Spencer Morrison's research material will be found on page 72, but under the wrong heading. By mistake, the research items were placed under the "Feed Service Bulletin Board" headline rather than their own. And that's almost worse than putting the wrong birds in the wrong pen, or the right birds in the wrong pen, or something, when conducting research.

Millfeed, Soybean And Alfalfa Meal Prices Bounce Up

Considerable price strength for oilseed meals, millfeeds and alfalfa meal popped up in this week's formula feed ingredient picture. Soybean meal took the lead with a national increase of $3.55 ton, bulk, over a week earlier.

One of the contributing factors in soybean meal price gains was wet weather holding up soybean harvest in most of the major producing states. And it appeared that this tighter supply situation was aided by increased demand. Added to these factors was the observation that perhaps buyers had over-stayed the market and found nearby offerings limited.

For quite some time feed manufacturers have been buying just enough meal to get by until new crop time, but the new crop has been delayed. With inventories down, manufacturers are now rushing in to buy. Export demand for soybean oil meal has been brisk.

At principal markets, middlings and shorts were up $2.30 ton compared with a week earlier. The strengthening influence seems to have come from the West. The threatened dock strikes on the east and Gulf coasts raised the possibility that flour exports might be cut off, which could curtail flour milling operations.

For the week ended Sept. 29, alfalfa meal was stronger in price at principal markets by $1.05. Here again, processors had less than normal stocks on hand and export buying picked up. Also, the alfalfa producing season may terminate earlier than usual this year.

Average Bulk Prices and Index of Weighted Prices*
(Dollars per ton)

	Sept. 29, 1959	Sept. 22, 1959	Change from previous week
OILSEED MEALS			
Prices at prin. mkts.:			
Soybean meal	62.85	59.30	+3.55
Cottonseed meal	58.60	57.65	+ .95
Linseed meal	72.80	71.90	+ .90
Copra cake or meal	68.00	70.50	—2.50
Peanut meal	57.00	56.00	+1.00
Index	81.4	78.1	+3.3
ANIMAL PROTEIN FEEDS			
Prices at prin. mkts.:			
Meat meal	76.80	77.40	— .60
Tankage	78.60	79.10	— .50
Fish meal	121.50	124.50	—3.00
Index	75.7	76.7	—1.0
GRAIN HIGH-PROTEIN FEEDS			
Prices at prin. mkts.:			
Gluten feed & meal	40.40	40.40	...
Dist. dried grains	45.20	45.20	...
Brewers dried grains	38.00	38.00	...
Index	63.7	63.7	...
WHEAT MILLFEEDS			
Prices at prin. mkts.:			
Bran	36.60	35.60	+1.00
Middlings & shorts	42.10	39.80	+2.30
Index	71.1	68.1	+3.0
OTHER MILLFEEDS			
Prices at prin. mkts.:			
Hominy bran	39.35	37.80	+1.55
Rice bran	29.50	29.50	...
Index	60.9	58.8	+2.1
ALFALFA MEAL			
Prices at prin. mkts.	49.55	48.50	+1.05
Index	95.4	93.4	+2.0
MOLASSES, FEEDING			
Prices at prin. mkts.	23.00	23.05	— .05
Index	68.4	68.6	— .2
ALL FEEDSTUFFS			
Index	76.1	73.9	+2.2
FEED GRAINS			
Prices at prin. mkts.:			
Corn	39.10	38.30	+ .80
Oats	45.10	44.60	+ .50
Barley	42.30	42.00	+ .30
Grain sorghums	35.20	35.30	— .10
Index	64.3	63.3	+1.0

*Base period of index is 1947-49.

NAMED MANAGER

PETALUMA, CAL. — Dave Soren has been named manager of a new association known as the Dairy Feed & Supply Cooperative here.

L. B. Stuart

A. J. O'Brien

Ralston Purina Staff Changes Announced

ST. LOUIS — L. B. Stuart, executive vice president of Ralston Purina Co., has requested and been granted early retirement, effective Dec. 31, 1959, according to Donald Danforth, chairman of the board.

C. A. Tolin

Mr. Stuart will continue as a member of the board of directors of the company.

Mr. Danforth also announced A. J. O'Brien has been elected vice president, secretary and chief finance officer. Mr. O'Brien joined Ralston Purina at its general offices in St. Louis in 1944. He was elected secretary of the company in 1957.

C. A. Tolin, vice president, has been elected assistant finance officer. Mr. Tolin was elected vice president and general manager of feed and soybean production in June, 1959, after 33 years of service with the company.

Weak Tallow Price Seen in Outlook

WASHINGTON—The outlook for the year ahead is for relatively low inedible tallow prices as output rises in 1959-60 and stocks remain large, the U.S. Department of Agriculture predicted this week in its Fats and Oils Situation report.

It's likely that prices this fall will be at the lowest level since 1953, when they averaged 5.3¢ lb. during October-December. USDA said no real relief in tallow prices is probable until livestock slaughter turns downward again.

Output of inedible tallow and greases in the marketing year beginning Oct. 1, 1959, is currently forecast at 3.3 billion pounds compared with 3.1 billion estimated for the year just ending, reflecting the anticipated increase in cattle and hog slaughter.

Apparent production of inedible tallow and greases in October-July, 1958-59, totaled 2,600 million pounds, about 13% more than a year earlier. Domestic disappearance is running about 6% above last year and exports are up 14%. But, as USDA pointed out, total disappearance was not great enough to offset the big increase in output. Stocks Aug. 1 were nearly a third above the same date last year.

Prices of inedible tallow (prime, tank cars, Chicago) declined steadily from 7.6¢ lb. in October to 6.1¢ in August, 1959, averaging 6.9¢, compared with 7.7¢ a year earlier. Prices in mid-September at 5.6¢ lb. were nearly 2¢ under September, 1958, and the lowest since 1953.

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Small's dehydrated alfalfa

Arkansas Feed Men Hear Latest Research Findings

By THOMAS E. LETCH
Feedstuffs Staff

FAYETTEVILLE, ARK. — Attendance at the Arkansas Formula Feed Conference Sept. 17-18 soared over the 200 mark to set a new record for this annual gathering. Those present heard talks about the latest research being conducted at the University of Arkansas along with information from other universities and from companies serving the feed industry.

Eight speakers from outside the state presented papers. These papers, plus those presented by Arkansas speakers, covered such topics as supplementary amino acids in swine and poultry rations, recent developments in controlling CRD in poultry, limited feeding of growing pullets, comparative feeding values of vitamin A sources, effects of pelleting, carcass differences of beef cattle fed different rations, recent developments in coccidiosis control, feeding practices in turkey production, processing of whole soybeans for feeding chicks and others.

One of the features of the conference was a panel discussion on pelleting, with Dr. E. L. Stephenson of the University of Arkansas as moderator. Also taking part were C. N. Hultberg, California Pellet Mill Co. and Dr. O. H. Horton of Arkansas.

Among points brought out by speakers were these:

- Mechanically limiting the feed intake of egg type pullets is effective in raising replacements that perform well.
- At present prices, addition of crystalline amino acids to swine rations is not economically sound.
- Soybean oil meal in a swine ration as the major source for protein seems to provide the essential amino acids.
- Pelleting exerts no beneficial or harmful chemical effect on broiler diets. The beneficial effect seems to be due solely to the fact that chickens eat more pelleted feed than mash.
- Use of laying feed containing lowered levels of protein with supplemental methionine shows promise of improving feed efficiency.
- A combination of antibiotics has produced greater growth response in swine than the antibiotics fed singly.
- Beef cattle show a preference for coarsely ground feed over finely ground preparations.
- The feeding of beef cattle on barley and on corn produced very similar carcasses. Steers fed milo were intermediate in carcass grade and steers from lots fed a mixed ration rated lowest in carcass grade.

USE OF FEED MICROSCOPY IN QUALITY CONTROL—Lewis Barefield, Arkansas State Plant Board: Feed microscopy was cited by Mr. Barefield as "an extremely valuable tool" for both the feed manufacturer and the legal control officer, particularly from a quality control standpoint. He said feed microscopy is valuable also as a complement to chemical analysis.

THE FUTURE OF LYSINE IN ANIMAL AND POULTRY FEEDS—K. N. Wright, A. E. Staley Manufacturing Co., Decatur, Ill.: In reviewing the need for lysine in the diet, Mr. Wright noted that there are many indications that requirements of the young chick are greater than the recommendations by the NRC. He also pointed out that the lysine requirements of the chick and laying hen are different.

Under normal conditions, he said, it would be difficult for synthetic lysine to compete with soybean oil meal as a source of lysine. However, he noted that synthetic lysine may find an economical use where milo or other feed grains are plentiful and where protein is high priced.

LIMITED FEEDING VS. LIMITED ENERGY FEEDS FOR THE GROWING PULLET—Dr. J. H. Quisenberry, Texas A&M College: Dr. Quisenberry noted that comparisons have been made between pullets reared on: (1) Limited daily feed intake, (2) high-fiber diets and (3) conventional low-fiber, full-fed growing diets. By limiting daily feed intake or full-feeding a 15-20% fiber growing diet, he said, body weight may be reduced, sexual maturity delayed and percentage of large eggs increased. The effects of these practices on number of eggs laid and laying house mortality are still controversial. He said full-feeding the high-fiber diets results in a considerable increase in feed cost per pullet placed in the laying house.

Dr. Quisenberry outlined programs for the three types of feeding for growing pullets, and then he went on to describe research the past three years at the Texas station.

Dr. Quisenberry said sufficient work has been completed to support the tentative conclusion that a number of feeding programs can be relied upon to produce good pullets. Individual preferences and small savings in feed costs would probably be the determining factors in the choice of one of the three programs by a particular person for a particular situation.

For light breed egg production stocks, he said he would probably choose the high-fiber program for colony cage rearing, the limited feeding program for spring and summer range rearing with good range cover, and the low-fiber, full-feeding program for confinement floor pens and for fall and winter brooding on the range.

SUPPLEMENTARY METHIONINE FOR HENS—Dr. Robert H. Harms, Florida Agricultural Experiment Station: Dr. Harms cited Florida work with experimental laying diets involving the addition of .075% methionine hydroxy analogue (MHA — registered trademark, Monsanto Chemical Co.). Protein levels from 14.7 to 16.7% protein were used. The diets were corn-soy diets containing 2.5% fish meal and 3% alfalfa meal.

In the first experiment, addition of MHA increased egg production significantly with all feeds and improved

(Turn to ARKANSAS, page 103)

OFFICERS—Shown (left to right) are the officers elected during the annual meeting of the Arkansas Feed Manufacturers Assn.: Henry Niemeyer, Niemeyer Grain Co., Inc., Little Rock, vice president; Harold Snyder, Arkansas Valley Feed Mills, Inc., Dardanelle, outgoing president congratulating Dick Kendrick, Tyson's Feed & Hatchery, Springdale, new president; J. W. Cobb, Cameron Feed Mills, North Little Rock, secretary-treasurer.

Arkansas Association Elects New Officers, Acts on Inspection Fee

FAYETTEVILLE, ARK. — Dick Kendrick, Tyson's Feed & Hatchery, Springdale, Ark., was elected president of the Arkansas Feed Manufacturers Assn. during the annual meeting held here in connection with the Arkansas Formula Feed Conference.

Henry Niemeyer, Niemeyer Grain Co., Inc., Little Rock, was elected vice president, and J. W. Cobb, Cameron Feed Mills, North Little Rock, was re-elected secretary-treasurer.

Directors of the association include the officers and Harold Snyder, Arkansas Valley Feed Mills, Inc., Dardanelle, outgoing president; Collier Wenderoth, OK Feed Mills, Ft. Smith; James Dunaway, Thibault Milling Co., Little Rock, and Gail Brown, Jeff D. Brown Co., Springdale.

The association adopted a resolution asking the Arkansas state plant board to exempt from the 10¢ per ton inspection fee all feeds which are fed to poultry and livestock owned by the feed manufacturers.

The resolution pointed out to the board that this feed was established to provide the buying public with protection and to assure that the buyer receives the product the manufacturer guarantees. Where the manufacturer is buying his own feed, this protection is not necessary, the resolution noted.

Winnipeg Exchange Names Chairman

WINNIPEG — Earle H. Greene of Cargill Grain Co., Ltd., was elected chairman of the board of governors of the Winnipeg Grain Exchange at the recent annual meeting here. Ross G. Wright, Scottish Co-operative Wholesale Society, Ltd., and Barry J. Knight, N. M. Patterson & Sons, Ltd., were elected as vice-chairmen; Stanley N. Jones continues as president and R. S. Elliot as secretary-treasurer.

Members elected to the board for a two-year term were H. L. Eddy, K. A. Powell (Canada) Ltd.; L. R. Fennell, broker; G. C. Griffin, Alberta Wheat Pool; R. S. Misener, Consolidated Shippers, Ltd.; George T. Richardson, James Richardson & Sons, Ltd., and M. O. Thomas, Louis Dreyfus Corp.

Members continuing on the board for another year are: G. W. P. Heffelfinger, Jr., National Grain Co., Ltd.; Charles Kroft, McCabe Grain Co., Ltd.; J. R. Lindsay, grain merchant; L. A. McCorquodale, Maple Leaf Milling Co., Ltd.; Morton Miller, Searle Grain Co., Ltd., and C. H. Smith, Smith, Vincent & Co., Ltd.

F. C. Visor

R. D. Monson

3 Appointments Made In Pfizer Ag. Division

NEW YORK—Three new appointments within the New York headquarters of the agricultural division of Chas. Pfizer & Co., Inc., have been announced by Hugh Dermody, assistant general manager.

W. A. Staempfli, Jr.

Fred C. Visor was named advertising and sales promotion manager of animal health products, Richard D. Monson was appointed to the new post of assistant animal health products manager and William A. Staempfli, Jr., formerly with the Poultry & Egg National Board, was named feed supplements advertising and sales promotion manager.

Mr. Visor joined Pfizer in 1952 as an associate research biochemist in the technical service department in Brooklyn, N.Y. He joined the agricultural sales division in 1955. He received a B.S. degree in pharmacy and a master of science degree in biochemistry, both from Temple University.

Mr. Monson received a B.S. in journalism from the University of Utah and a master's degree in business administration from New York University. Prior to his new appointment Mr. Monson served as feed supplements advertising manager.

Mr. Staempfli joins Pfizer from the Poultry & Egg National Board headquarters in Chicago where he has been serving as director of broiler and turkey promotion. He graduated from Cornell University in 1953 with a B.S. degree in agriculture. He served in field research activities with both the poultry and agricultural economics departments of Cornell before joining PENB in Chicago in 1956.

INSPECTION OFFICE

STOCKTON, CAL.—The U.S. Department of Agriculture has opened a new supervisory grain inspection office under the Agricultural Marketing Service, in Stockton. The office will supervise the work of federally licensed state inspectors, and will also process appeals on government owned commodities.

BILLBOARD — The Ralston Purina Co., St. Louis, is launching a national "Eat Broiler" billboard campaign to tie in with the broiler industry's campaign to boost the sale of broilers in October. Shown is the sign which will appear before an estimated 173 million consumers.

REPORT INERT GAS STORAGE CAPACITY

KANSAS CITY, MO.—A survey by the American Dehydrators Assn., Kansas City, indicates that total inert gas storage capacity in the U.S. is about 470,000 tons. A recent association bulletin reported that stocks on hand among producers of dehydrated alfalfa at the end of August, including not only gas but all storage, amounted to 399,500 tons. "This," said the bulletin, "would seem to indicate that much of the gas storage was still unfilled at that time."

Hess & Clark's Egg Caravan in Harrisburg

HARRISBURG, PA.—The "Golden Goodness of Eggs" caravan of Hess & Clark, Inc., Ashland, Ohio, will move in on Harrisburg Oct. 5-8 and distribute 40,000 hard-cooked eggs as part of the firm's campaign to promote greater egg consumption. The occasion is the annual Northeastern Poultry Producers Council convention.

Frank Castelli, chef at the Penn-Harris Hotel in Harrisburg, will hard-cook the eggs—25,000 will come from Hy-Line Chicks through the Hy-Cross Hatcheries in Doylestown, Pa., and the remainder will come from the Pennsylvania Egg & Poultry Producers, Inc., through the Cooperative Exchange in Coatesville. The eggs will be distributed to Gov. David Lawrence, state office workers, convention visitors and residents and dignitaries of Harrisburg.

The Morton Salt Co. is joining in the promotion with the theme "Any Egg Worth Its Salt Is Worth Mortons."

The Neppco convention is the fifth stop on the caravan schedule.

Dr. A. L. Andrews, feed products manager for Hess & Clark, said: "Even though our products (nitrofuran drugs for feeds) are several steps removed from the consuming public, we want to do what we can to call attention to the good taste and nutritional value of eggs." Hess & Clark recommends its nf-180 for use in laying feeds to improve egg production and feed efficiency.

Cargill to Open Delmarva Facilities

SEAFORD, DEL.—A new grain marketing center and expanded elevator were opened at Seaford by Cargill, Inc., Minneapolis, initiating what company officials called "a major new service to Delmarva agri-businessmen."

"Peninsula agriculturists have been faced with increasing competition in production of their traditional goods," said C. W. Ritchie, Cargill manager at Seaford. "They are pinched by high transportation costs of feed ingredients. This new office and elevator facility will provide more immediate service and a nearby source of grain and protein meal. It will be particularly beneficial to the area's $200-million annual broiler business."

Most Delmarva soybeans bought here will be processed in Cargill's newly-built Norfolk, Va., processing plant, and Seaford will become a major soybean meal distribution point, Mr. Ritchie said.

The elevator, expanded nearly six times in capacity, to 610,000 bu., has added a new barge dock with loading facilities; two steel storage tanks to handle increased bean procurement; one combination truck unloader and scale for inbound grain, and a 1,000-bu.-per-hour grain drying unit.

Most of Cargill's Baltimore, Md., staff has been transferred here and that office closed, Mr. Ritchie said.

Other personnel at Seaford include Wesley R. McMillen and Miles H. Patton, Jr., merchants; Robert W. Aaberg, accountant, and James W. Hanson, coordinator of soybean meal merchandising.

Strong Gains Made In Oil Meal Futures

MEMPHIS, TENN.—Oilseed meal futures made substantial gains on the Memphis Board of Trade during the past week, largely the result of unfavorable weather over the main soybean belt.

However, on Sept. 29, prospects for clearing weather, concern over negotiations of a longshoremen's contract and a weakened technical structure of the market after short covering of recent days brought easing tendencies.

The bad weather, promising to impede the harvest of soybeans, sent prices higher in that commodity and a sympathetic firming in oilseed meal futures.

Fairly good export meal business also contributed to the week's upturn.

One pit observer noted that mixed feed business continued slow compared with a year ago. And with ample supplies of all ingredients likely for the coming season, mixed feed manufacturers appeared in no hurry to cover their future requirements.

Memphis basis soybean oil meal closed Sept. 29 $1@2.50 a ton higher than on Sept. 22. Unrestricted soybean oil meal was 75¢@$2.10 higher and bulk cottonseed meal was $1.25@1.75 stronger.

Trading for the week amounted to 500 tons of Memphis basis soybean oil meal, 2,800 tons of unrestricted soybean oil meal and 3,200 tons of bulk solvent cottonseed oil meal.

Repair and Clean-Up Underway After Flood

ST. JOSEPH, MO.—Even though production was resumed at the Quaker Oats Co. plant here two days after a flash flood rolled through the Whitehead Creek area Sept. 22, operations remained curtailed this week while workmen continued cleaning up and repairing damage caused by the high water. (Earlier story, page 109, Feedstuffs, Sept. 26.)

Two other grain handling firms had their facilities damaged by the flood, also. Grain stored at Dannen Mills was damaged by flood waters 5 ft. deep. Government inspectors were checking the damage this week. Farm Service Co. buildings and equipment were damaged. A section of a foundation wall was pushed in by the rushing water.

At the Quaker Oats Co. plant, flood waters filled the basement of the main office, damaging electronic equipment, and lower portions of grain storage areas. Unsigned payroll checks for a half-month period were washed away.

Washing out of electrical lines cut off power at the mill. Some departments resumed work this week, but others still were cleaning up equipment. No water entered shipping or manufacturing sections of the plant.

More Contributors to Straube Fund Listed

A number of feed firms in addition to those listed in the Sept. 26 issue of Feedstuffs have contributed funds for the Oscar Straube Memorial Scholarship House at Kansas State University.

A story from the university last week noted that several feed companies have "purchased" rooms in the house which is to be used by qualified students in feed technology and related fields.

Inadvertently omitted were the names of other firms which have made contributions to the program which was established in memory of the late Oscar Straube. These include Albers Milling Co., Los Angeles; Spartan Grain & Mill Co., Spartanburg, S.C., and Superior Feed Mills, Oklahoma City.

K-State officials have noted that some $13,000 has been contributed but that an additional $25,500 is needed.

Earl Klenk

Paul Frederick

Hubbard Milling Makes Changes in Personnel

MANKATO, MINN.—In a series of executive changes within Hubbard Milling Co., Mankato, Ogden P. Confer, president, has announced the appointment of Earl Klenk as director of a new business development department.

John McNeal

This new department, Mr. Confer said, will handle livestock - production loans, marketing programs and management of two new research and demonstration farms recently acquired.

At the same time, Paul Frederick, manager of the Marion, Ind., branch, will return to Mankato and will be associated with the business development department. Succeeding him as branch manager at Marion will be John McNeal.

Starting with Hubbard as field credit supervisor, Mr. Klenk has served in various capacities in credit work and livestock marketing.

Mr. Frederick has been with Hubbard Milling Co. for 23 years, and at the Marion branch since 1952. Mr. McNeal has been a territory manager in northern Indiana for the past four and a half years.

Kent Feeds Adds to Plant in Sioux City

SIOUX CITY, IOWA—An addition to the Kent Feeds plant, opened at Sioux City in 1958, is being completed to accommodate expanded sales in the area, the company announces.

The 60 x 100 ft. steel type building will increase warehouse space approximately 33% and double truck loading facilities to lessen the feed pick-up time delay.

The new addition also has additional office space.

C. M. WOODY PROMOTED

ST. JOSEPH, MO.—C. M. Woody has been promoted to general manager of the Benton Du-It Feeds. Mr. Woody has been in charge of sales and service for the company.

Purina Plans Dairy Research Facilities

ST. LOUIS—A new seven-building dairy research unit will be built on the Ralston Purina Research Farm at Gray Summit, Mo., it has been announced at Purina headquarters in St. Louis by Dr. Ronald M. Bethke, research vice president.

Construction work will start immediately. The new facilities are expected to be in operation by the spring of 1960. The Westlake Construction Co. of St. Louis is the contractor.

The new dairy unit will incorporate the most modern techniques of milking, milk handling, housing and feeding, according to Dr. Bethke. The buildings include a milking parlor, maternity and test cow barn, calf barn, dry cow and heifer barn, and two hay storage barns. A pen stable will include four lots, with the building open to the south.

The unit is designed to handle four lots of 25 experimental animals—a total herd of 100 milking cows. Facilities will also be provided to care for calves, developing heifers and dry cows.

A modern pit-type milking parlor will accommodate six cows. Milking machines will be equipped with an in-place cleaning system. Milk will be handled in bulk. A glass-front auditorium will be built overlooking the milking parlor and feeding barn.

Dr. Bethke said the new unit will permit the expansion of Purina's dairy research by providing facilities for handling more groups of cows.

Steel Strike Not Yet Serious for Machinery, But Problems Ahead

KANSAS CITY—The steel strike has not seriously hampered operations of feed machinery companies as yet, but unless the strike is settled very soon, there can be real problems.

That was the consensus of a number of machinery and equipment firm officials who commented on the situation during the Feed Production School here last week.

Some types of steel are in short supply, they indicated, but for the most part purchases made before the strike have taken care of machinery manufacturing operations. Some indicated that their supplies would be mostly adequate for another month or two.

However, the outlook was said to be quite serious unless there was a settlement of the 80-day strike soon. Even with an early settlement, there will be problems because of the long shut-down and the heavy demand for reduced supplies.

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Feed Firm's Court Action Puts Chemell Farm in Receivership

By Special Correspondent

GAINESVILLE, GA.—While a further federal court hearing on the Chemell corporations' financial situation is being awaited, action on another court front is currently under way.

The latter action developed when the Central Soya Co. filed a suit in Hall County Superior Court to put the Chemell Breeder Farm, Inc., in receivership. Judge G. Fred Kelley ordered the firm put in temporary receivership, and a hearing was to be held at which Chemell Breeder Farm would be asked to show cause why it should not be placed in permanent receivership.

This action came while creditors and three Chemell corporations were awaiting another federal court hearing Oct. 8 in Atlanta in connection with the Chemell debts and the proposed reorganization of the hatching business corporations.

A previous federal court order enjoined creditors from instituting suits against three Chemell corporations—Gainesville Hatchery, Inc., Chemell's Hatchery, Inc., and Chemell, Inc.

However, the Chemell Breeder Farm, Inc., against which Central Soya has taken action, is not involved in that order, observers pointed out.

Central Soya, in its suit in Hall County court, declared that Chemell Breeder Farm, Inc., planned to turn its assets over to Gainesville Hatchery, Inc., one of the three corporations involved in the federal court action and now being directed by a court-approved board of trustees.

Central Soya said that Chemell Breeder Farm, Inc., owes it some $326,000 and that if the Breeder Farm assets were turned over to Gainesville Hatchery, Central Soya would never receive the amount owed.

The action asks that the Breeder Farm officials be restrained from selling or transferring any of the corporation's assets. It was indicated that the corporation has breeder hens which have completed their laying period and are ready to be sold and that there are other birds about to come into production.

The Central Soya attorneys said that the feed firm had been guaranteed money on the birds.

Broiler Price Decline Noted

SALISBURY, MD. — Break-even prices for the broiler grower faded away last week in Delmarva, leaving the majority of the growers operating in the "red."

The average price paid at the farm was 15.65¢ per lb. This compares to 16.97¢ the week before. A year ago the price was 15.36¢.

Broiler prices across the nation have hatcherymen holding back their egg set. In 22 important broiler states last week, the egg set was 32,651,000, or 1% less than the previous week and 13% less than the corresponding week a year ago.

Settings were down from the previous week in 15 of the 22 states. The sharpest decreases were reported in North Carolina, Maine, Virginia and California.

Broiler chick placements are running behind last year by 6%. For the past two weeks the placement figure has been the same at 24,039,000.

Decreases were reported for 12 states—increases in 10 states, compared to the previous week. The largest decreases from the previous week occurred in Alabama, Arkansas, Georgia and West Virginia.

Spencer Kellogg Plans Office Move in Buffalo

BUFFALO — Spencer Kellogg & Sons, Inc., plans to move its headquarters to a newly-remodeled and expanded office building at 120 Delaware Ave. here. Its present historic building at 98 Delaware will be demolished for a parking lot.

Plans for Spencer Kellogg's move from its 128-year-old classic example of Georgian architecture were announced Sept. 28 by Howard Kellogg, Jr., president of Spencer Kellogg, and John J. Boland, Jr. and Darwin R. Martin, president and executive vice president, respectively of 120 Delaware, Inc.

Mr. Martin and Mr. Boland said 120 Delaware, Inc., has purchased all of the holdings of Kellogg Realty, Inc., owner of the property at Delaware and Niagara Square.

Spencer Kellogg will occupy the fourth and fifth floors at 120 Delaware, comprising more than 25,000 sq. ft. of air-conditioned space. The offices will be moved about Dec. 1, with demolition of the old landmark to take place soon after.

EDIBLE OIL

(Continued from page 1)

price on the basis of loose pricing by the government agency.

This year crusher tenders of cottonseed oil will be on a 60 day final delivery of cottonseed oil to the government, and in fact it will require the crushers to retain in their possession the residual oil for a period of 60 days, and then turn it over to CCC. This policy forecloses an opportunity for the crushers to deal in this oil in the open market before they deliver to the government.

An influential USDA official said there has been some sharp revisions in the original press statement made this week by USDA in regard to its cottonseed price support program.

The most important paragraph of that statement is as follows:

"Department officials explained that the plans are being held on a standby basis as cottonseed is now selling close to or above the support price in all areas. They also stated that the prospective export demand for cottonseed oil is greater than last year."

After those last three words there was originally a further statement that there were five countries which would be claimants under Public Law 480 for substantial quantities of cottonseed oil this year. The Argentine was mentioned as one of those nations. Its requirements are expected to be consequential.

Bean Disappearance Forecasts

USDA officials are clinging to previous forecasts of disappearance of soybeans at the following levels: Domestic crush at 425 million, exports at 125 million, while seed and waste amount to 35 million. On the basis of most recent crop estimates by USDA, this would mean that total supply as of Oct. 1 amounts to about 585 million bushels.

From this basic equation it must be seen that if the farmers hold back, whether through loan or farm retention, as much as 15% of this relatively small crop, the farm position is the major market-making factor for the distant future contracts. The major question is the timing of the market low.

Another interesting aspect of the bean crop is the new position of Arkansas as the fourth largest bean producing state in the Union. Arkansas is in a most convenient bean export position, it is noticed.

An influence which is yet to be understood by the oil trade in the big gossip market of New York is that oil donation programs are in the making.

Already USDA top front office staff has given its okay to the domestic oil donation program for relief distribution in chronic unemployment areas.

BETTER LAMB FEEDING PROSPECTS NOTED

WASHINGTON — Prospects for favorable returns from lamb feeding are somewhat brighter this fall than last, the U.S. Department of Agriculture points out. Feeder lamb prices are lower than a year ago. September feeder lamb prices at Omaha were around $19, and choice slaughter lambs were $20.50 cwt. Last fall feeder prices were often as high or higher than slaughter lamb prices.

In addition, said USDA, lambs are coming off western ranges at lighter weights this fall, providing more flexibility in feeding operations.

Fed lamb prices are currently below a year ago and may show some seasonal decline this fall. However, prices are not expected to drop sharply late this fall as they did last year, and this winter may average as high or a little higher than last winter.

Estimates (probably guessing by USDA officials) are that the domestic relief program will run as high as 75 million pounds, probably a most wasteful program since the voluntary and state agencies will push out these products generously without regard for total need.

However, this total demand estimate for domestic relief will not be a net addition to total demand, since this quantity will probably represent a replacement of edible fats which are now being made available from other sources.

Top USDA officials believe that the domestic supply donation program will largely consist of lard. No timing of this program has been indicated. USDA probably will drag its feet and take action as the hog price situation bogs down further.

USDA probably will not do anything this winter to encourage hog breeding during the December-February period—consequently the lard relief program will be possibly held back as a Santa Claus gift later this year.

Foreign Relief Probable

This USDA source says that the decision to go through with an oil domestic relief program means that ultimately USDA will take on a foreign oil donation program which can conceivably run as much as 250 million pounds or higher.

Much of this estimate depends on possible Polish demands for edible fats—a commitment of the Khrushchev visit. Up to this time the State Department has been reluctant to approve any expansion of any Polish programs. Most of the U.S. leverage in the edible oil and fat markets behind the Iron Curtain has come through the exports of beans to West Germany, which, it is well known, has been exporting edible oils behind the Iron Curtain.

Any State Department decision in this instance is not necessarily for or against the Russian controlled satellites but one, vis-a-vis West Germany. Last year the State Department gave in on the Polish program, and with the new air after the Khrushchev visit, it is not improbable that State Department officials may find it appropriate to again take down the road blocks of U.S. exports to Poland.

Despite the huge supplies of edible oilseed and animal fats, USDA officials are confident that the U.S. may reach a new high level of exports of those commodities this crop year.

March-May Chicago Prices

They are now concerned about the probability that soybean prices at the big Chicago market may run up as much as 20¢ higher than current levels for the March-May contracts. In fact, some officials agree with this reporter that the farmer holding of beans can bring the March-May contract into a price range of $2.40@2.50.

It must be remembered that Foreign Agricultural Service now has at its command disbursement of $1.5 billion annually through authorizations for sale at loss prices to USDA—and the political connotations of 1960, particularly in the farm states such as Iowa and Illinois—because its soybean emphasis may make it politically intelligent to make the soybean crop most profitable to the farmer who holds beans now.

The farm holding of beans is the most substantial influence on the market at this time. USDA has announced its sales price of beans last month. It is not frozen to any price formula. Its new price support level is now on a national average basis of $1.85 bu. plus carrying charges after Dec. 31, 1959, or the market, whichever is the higher. But the farm law does not hold them to any fixed figure.

Can you imagine that the politically-sensitive USDA staff would break a buoyant soybean market next summer by dumping its relatively small carryover of old crop soybeans at a price which would bust this market?

The keynote is—watch the USDA decisions on a soybean donation program for foreign aid through the voluntary aid agencies. They are already headed into a domestic give-away program. Last year they fought off domestic donation, since they stated in council meetings that they could not okay a foreign donation relief program if they did not do it domestically.

Now they have bowed down to a domestic donation relief program, yet to be publicly announced, so therefore how can they back away from the same type of program for foreign relief?

The White House has asked for a food for peace program in a desperate act to take the play away from Sen. Hubert Humphrey (D., Minn.), who first initiated this idea. Congress rejected it.

Now the administration may find it absurd to back away from a minor food-for-peace program which would only involve donation distribution of edible fats for voluntary aid agency use, wasteful as it would probably be.

Beneficial to Feed Industry

A fats and oils donation program may be largely beneficial to the feed industry since it would take great pressure off oilseed meals and permit the industry to compete with the heavy holding of feed grains at the farm level.

It is no secret that the oilseed crushing industry has recruited substantial and bi-partisan support for a foreign oil donation program on the Senate side of Congress.

They probably will not be denied now that Sen. John Sherman Cooper (R., Ky.) has pushed through Congress and obtained top level administrative approval at USDA of a domestic oil donation program—a foreign aid program through the voluntary aid agencies.

Skeptics on higher soybean and oil prices may give some attention to this major policy outlook.

The big problem is the timing. Unfortunately this information is not currently available, but the best guess for the hedgers and the speculators is to watch the distant March-May future contracts at Chicago.

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Research Findings, Advice On Pelleting Presented at '59 Feed Production School

By ROGER BERGLUND
Feedstuffs Managing Editor

KANSAS CITY—If ever there was any doubt about the importance to feed men of pelleting—and the problems that go with it—this doubt was dispelled at the 1959 Feed Production School Sept. 23-25 in Kansas City.

Pelleting was the principal subject discussed at this year's school, and it was examined from every angle—from the effects on the smallest particle in the feed to the handling of the biggest pellet or wafer. And some of the economics as well as the technology of all of this were brought out, too.

The widespread interest in this subject drew an attendance of more than 700 at the main production school, and more than 400 were registered for the Small Mill Short Course on Sept. 26. Many of those attending the main school stayed over for the short course, and a total registration of well over 800 different feed men was recorded for the two programs.

As reported previously (Feedstuffs, Sept. 26) results of special pelleting research projects as well as talks giving suggestions on methods and facilities were presented during the three-day school. Much of this research is expected to be of real significance to the feed industry.

Pelleting of roughage and complete rations for ruminants came in for considerable discussion. While this practice is increasing rapidly, it was apparent that many feed men still have many questions—as much or more on various nutritional and economic questions as on actual techniques of production.

The special pelleting research dealt with such things as effects on microingredients, die life, mash conditioning, pelleting costs, effects of mechanical handling in pellet damage and die speeds. A study of bag vs. bulk feed handling also was reported.

There also were numerous technical discussion periods and specialized sessions on pelleting and other phases of feed production.

Following are summaries of research reports and talks at the main production school. (Reviews of the Small Mill Short Course and specialized sessions will appear later.)

PRODUCING PELLETED FEED FOR RUMINANTS—H. E. Prescott, Aero-Bulk Mfg. Co., Kansas City, discussed the various phases of producing complete high-roughage rations. The highest individual cost item in the over-all process, he said, is probably the grinding of the roughage itself. He noted that the finer the grind, the greater the power requirement. Also, the nutritional effect may not be good. Satisfactory pellets can be made in diameters of 5/16 to ¾ in. from hay ground through a ¼ to ½ in. screen at good economic rates without consumption of unnecessarily high power.

When possible, the hay should be stored in a hay barn 40 to 50 ft. wide and 100 to 150 ft. long, with a hay drag running the length of the building. A bale buster of some type should be installed ahead of the hay mill. Mr. Prescott said both the swinging hammer type mill and the fixed hammer or peg tooth type mill are suited for grinding hay, but he said a peg tooth mill produces a somewhat more uniform grind and will handle damp hay more easily. There is increasing use of negative air systems to handle the ground product from the mill.

Commenting on types of pellet mills, Mr. Prescott said that where production of high-roughage pellets only is being considered, he would recommend the horizontally located stationary die type of machine over the vertical revolving die type.

For conveying and elevating cooled pellets he advised a belt conveyor or slat type drag conveyor and a slow speed bucket elevator with large buckets or certain pneumatic systems.

For transporting pellets in bulk, he said there is now available a completely pneumatic bulk truck with no mechanical parts coming in contact with the pellets.

Mr. Prescott pointed out the advantages of complete pelleted feeds, citing handling as well as nutritional advantages of rations all in one complete package.

A RESEARCH ENGINEER LOOKS AT ROUGHAGE PELLETING AND WAFERING — John B. Dobie, agricultural engineer at the University of California, covered several aspects of roughage pelleting and wafering.

Moisture content of hay is very important, and low and uniform moisture content is a necessity for proper operation of grind equipment.

Because of ease of storage and transport, baled hay is more widely used by conventional pelleting mills than chopped hay in handling from the field. The most satisfactory method of handling bales at the plant is a fork-lift pallet system. Mills located close to hay supplies often handle hay in chopped form. Field wafers promise to become a favorite method of handling hay from the field to the pellet mill, particularly in place of baling.

Fine grinding requires as much power as pelleting and is the slowest part of the process in many plants, Mr. Dobie said. Particle size should be the maximum possible without seriously affecting pellet mill capacity. As the grinder screen size is increased, grinding may occur in the pellet mill, with resultant loss of capacity and increased temperature. In California studies, it was found that 5/16 in. screen ground hay could be made into ⅜ in. pellets with little additional grinding. The die-hole diameter should be ⅛ to ¼ in. larger than the hole size in the grinder screen.

Field pelleting (wafering) overcomes most of the problem of size reduction, Mr. Dobie said. Most experimental machines eliminate grinding and chopping.

The hay should be thoroughly dry (below 12%) for grinding, and then, with steam or water, brought to the optimum level for pelleting, about 14 to 17%.

Hay that can be ground fine enough to make small pellets will usually be low enough in moisture for safe storage.

Mr. Dobie noted that there are new developments in conventional pellet mills, stationary wafer machines and field pelleting (wafering) machines. New developments in conventional units involve attachments to improve flow of ground hay into the pelleting chamber. Demand for coarsely ground hay pellets for dairies required enlargement of the chute from the mixer to the die chamber and improvement of deflectors that direct feed to the rollers. One mill, designed for tractor or other type of drive, uses a screw to force-feed coarsely ground hay into the pelleting chamber.

At least three types of field pelleters are under trial. These are the reciprocating plunger, roller and tapered screw machines. Field machines may be commercially available in two or three years.

Regarding particle size in pelleted feeds, Mr. Dobie mentioned research results where fine grinding of hay for pellets has resulted in reduced butterfat percentage in milk from cows fed pellets. He said it is difficult to tell where the breaking point

1960 COMMITTEE—Plans are already being made for the 1960 Feed Production School, and here are some of the committee members who will be doing the planning. Seated, left to right, are: Arthur Saalfield, the Quaker Oats Co., Sherman, Texas; Si Renaudette, Wirthmore Feeds, Inc., Waltham, Mass.; Maxwell Cooley, Hoffman-Taff, Inc., Springfield, Mo., committee chairman, and Kenneth Winterscheidt, Winterscheidt Milling Co., Seneca, Kansas. Standing: Phil Wake, J. H. Wake Feed Mill, Oskaloosa, Iowa, vice chairman; Eugene Spitzer, Murphy Products Co., Burlington, Wis.; Dr. Otto Hill, Washington Farmers Cooperative Assn., Seattle; C. E. (Bud) Swick, Kent Feeds, Muscatine, Iowa, and Lloyd Larson, president of Feed Production School, Inc. Other members include Lonnie Wright, the Pillsbury Co., Clinton, Iowa; Jerry Karstens, Feed Age, Chicago; Roger Berglund, Feedstuffs, Minneapolis, and still others to be named.

SCHOOL SPEAKERS—Pictured here are some of the 35 authorities on pelleting and other phases of feed production who were on the speaking program at the 1959 Feed Production School. In the first photo, left to right, are: Will Brooks, Illinois Farm Supply Co., Springfield, Ill.; John B. Dobie, University of California agricultural engineer; Oak B. Smith, Wenger Mixer Mfg. Co., Kansas City; and Robert Wornick, Chas. Pfizer & Co., Inc., Terre Haute, Ind. In the second picture are: Arthur Saalfield, the Quaker Oats Co., Sherman, Texas, school chairman; Larry Alley, Pay Way Feed Mills, Kansas City, new chairman of the school's board of trustees; Phillip C. Wake, J. H. Wake Feed Mill, Oskaloosa, Iowa; Lloyd Larson, president of Feed Production School, Inc., and Robert Stroup, Sprout, Waldron & Co., Inc., Muncy, Pa.

PELLETING IS THE SUBJECT—Pelleting was the principal subject discussed at the recent Feed Production School in Kansas City, and here are some of the speakers who handled this and other topics. In the first picture, left to right, are: Arthur Saalfield, the Quaker Oats Co., Sherman, Texas, school chairman; C. N. Hultberg, California Pellet Mill Co., Crawfordsville, Ind.; C. E. (Bud) Swick, Kent Feeds, Muscatine, Iowa, and R. L. (Pat) Patterson, the Procter & Gamble Co., Cincinnati. In the second photo are: J. D. (Don) Johnson, General Mills, Inc., Minneapolis; Robert Bartikoski, Nutrena Mills, Inc., Minneapolis; A. J. Bohl, Wolf Management Engineering Co., Chicago; Dr. V. John Brensike, U.S. Department of Agriculture, Washington, and Art Stegner, Butler Mfg. Co., Kansas City. As indicated by the sign, the principal subjects under discussion at the school next year will be grinding and mixing.

is on the particle size so far as this question is concerned.

For pelleting roughage currently, he suggested a stationary plant so that it is not necessary to move both hay and the plant.

Size and shape of pellets or wafers have not had much effect in feeding. In handling, flow is better with small pellets than wafers.

Using conventional pellet mills, it is suggested that die and roller size be increased to get more material through if it is of coarse grind. Others have tried a force feed behind the rolls.

In a special discussion of pelleting roughage and complete rations, comments by Mr. Dobie and others included the following:

When using roughage on his own farm, a farmer might be better off just chopping the hay and not pelleting it.

With a ⅜ in. pellet, dies 2½ in. thick have given a good pellet in most cases. For the hay grind on this, 5/16 in. is about as high as one can go.

There may be increased consumption with pelleted hay as compared with chopped hay, but it may not be enough to merit pelleting.

Moistened ground hay has been about as good as pellets in some tests.

Some feeders with feed plants have quit feeding pellets for fattening cattle, feeling the pelleting is not worth the cost. They continue using pellets as supplements on pasture but not in fattening.

In a recent test, butterfat percentage went back up after a ¾" grind was used following use of a finer grind earlier.

Some persons are willing to feed pellets if the butterfat percentage drop is not more than half a percent because of advantages in materials handling, etc.

Some now using pellets feed some long hay along with the pellets.

In one test, if there was less than 70% roughage in the ration, gains were better on meal than on pellets.

Some have reported parakeratosis as a result of feeding pellets, but some studies have also shown this was not all caused by pellets.

PELLETING COST STUDY—A pelleting cost study was sponsored by Feed Production School, Inc., and conducted by Wolf Management Engineering Co., Chicago. A. J. Bohl, chief engineer, reported on the results of the study, which covered 8 mills of different sizes in different areas.

In addition to information on pelleting operations, one of the chief results of the study was to show that much of the industry apparently operates less efficiently than many other industries. This is partly the result of the nature of the feed business and its many variables. However, it also was indicated that better engineering, planning and supervision could improve operations in many mills.

The studies revealed a wide variation in methods and practices from one mill to the next. Mr. Bohl said that such variables as mill layouts, equipment capacity variations, imbalance of equipment and production line operations, formula variations, concepts of labor utilization and long established employee relations policies create variables that are impossible to cover with an industry-wide standard. However, standards applied on an individual mill basis can be used effectively, with consideration given to policies and practices which are causing delays, loss of production and increased costs.

The studies revealed wide variations and practices in quality control requirements, formulas, die and roll cost and productive life, improper use of equipment, employee training, frequent changeovers, daily production records, maintenance reporting, power and steam and supervision cost, labor utilization, facilities and work practices.

According to the studies, productive life of similar dies ranges between 2,200 and 5,000 tons and cost ranges from 14.42¢ to 31.20¢ per ton (including installation).

Another major problem appeared to be frequent changeovers.

Actual productivity of labor ranged from 40 to 60% of standard as established for the mills. This is lower than many other industries.

The report presented cost analysis sheets which showed comparisons and variances in costs for mills of different sizes—200, 100 and 50 tons per day. This information is in the transcript of the school proceedings, which is available from Feed Production School, Inc., in Kansas City.

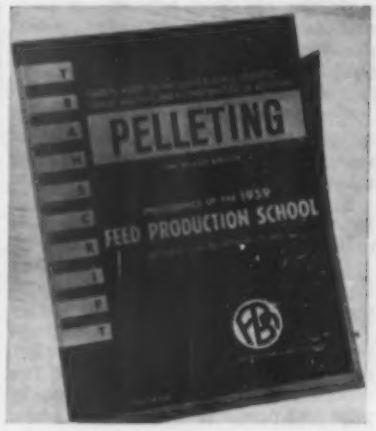
Mr. Bohl emphasized the importance of good cost analysis and production cost accounting. For example, the knowledge of just what the breakeven point is at various levels of capacity is the best profit insurance a businessman can give his organization.

A standard cost system is important so that cost performance can be evaluated and controlled.

"Sometimes," said Mr. Bohl, "managements think that modern, scientific business principles are a luxury that only big business can use and support but which they, in small business, cannot afford. They might ask themselves, 'Can we afford to operate without them?'"

EXTENDING DIE LIFE—R. L. Patterson of the Procter & Gamble Co., Cincinnati, outlined the results of an extensive study which showed how improved die surface finish and subsequent gains in production rates and die life can be obtained. The report was considered by feed men as among the most significant presented at the school.

Based on a three-year study in-



PROCEEDINGS AVAILABLE—The research reports and discussions of pelleting and other subjects at the 1959 Feed Production School are all available in the published proceedings. In addition to the detailed information on the subjects summarized in the accompanying story, the 200-page book includes the specialized session discussions of liquids handling, premixing, quality control, pellet cooling, pellet handling and conveying, and roughage grinding and mixing. The proceedings may be obtained at a price of $15 from Feed Production School, Inc., 20 W. 9th St. Bldg., Kansas City. Also available, at $5, are the proceedings of the Small Mill Short Course.

FULL HOUSE—The industry interest in pelleting and other production topics is shown in this photo of part of the crowd at the 1959 Feed Production School. More than 700 feed men filled the meeting room to capacity to hear the research reports and discussions of pelleting operations. The program ran on schedule throughout, and the feed men were on hand throughout all of the sessions.

volving laboratory, pilot plant and production mill testing aimed at evaluating the effect of added fat and other variables on pelleting, the researchers drew the following conclusions:

A. Fats are essentially non-corrosive.

B. Fats are good lubricants.

C. Corrosion in dies results from electrochemical action (oxygen concentration cells) at surface imperfections.

D. The effect of free fatty acid content of the fat on pellet production rate varies with extrusion dies, which are divided into three major classifications:

(1) On the poorest performing dies, with standard polish, rates are very low, regardless of the fatty acid level.

(2) On intermediate performing dies, also with the standard polish, there is wide variation in performance, even on the same fat. The only differences found favor low fatty acid fats (10 to 20% free fatty acid) over high fatty acid fats (70 to 80% free fatty acid). There were no real differences between fats in the 10 to 20% range and those in the 20 to 70% range.

(3) On the best performing dies, with improved surface polish, rates are very high. On these dies, there is no difference in performance, regardless of the fatty acid level.

E. Surface finish of extrusion die holes is found to be the most important factor affecting pellet production rates and die life.

F. Improved die surface finish and subsequent gains in production rates and die life can be obtained with:

(1) Better abrasive polishes. Two types were evaluated in pilot and production mills.

(2) Durable metal platings or coatings. A chemically deposited nickel plating was found effective for reclaiming poorly performing dies in pilot and production mills.

(3) Improved die alloys. Others are working on this lead, and a new die of this type is currently being introduced to the market.

Presently tests are under way in a production mill to evaluate the nickel plating on new dies. Time has not yet permitted a complete exploration of the plating discovery, but the results to date may create enough interest so that others will want to study it. It seems likely that it may have significant meaning to the feed industry.

FACTORS IN CONDITIONING PELLET MASH—Oak B. Smith, Wenger Mixer Mfg. Co., Kansas City, reported on research by his firm to study the effects of increased steam conditioning on gelatinization of starches, levels of fines, pellet toughness and vitamin A retention. One purpose of gelatinizing is to make digestion more complete and improve feed utilization. One aim of the study was to compare gelatinization in the normal hard pelleting process to that obtained by preconditioning pellet mash at various temperatures and with varying retention periods prior to pelleting. There is some gelatinization in production of normal hard pellets, but Mr. Smith sought a means to appreciably increase percentage of gelatinization in production of hard pellets.

Mr. Smith noted that starches have been completely gelatinized in an expansion pelleting process used to produce expanded dog foods and to gelatinize cereals as feed ingredients. This was obtained, however, in an extrusion system in the presence of high levels of moisture, which requires considerable drying of the finished product. The recent tests then were conducted to see how gelatinization could be increased in the conventional hard pelleting process. It was reasoned that a partial gelatinizing process could improve feed conversion in the hard pelleting process. Also, it was expected that the pellets would be tougher and have less fines.

They did succeed in gelatinizing starches to a considerable extent, and the other anticipated results proved for the most part to be valid. Fines were materially reduced, and pellet toughness enhanced in some cases.

The preconditioning, including injection of steam, was done with a two-stage preconditioner 10 ft. long. This was installed above the normal pellet mill. The same formula was used in all tests—an 18% broiler feed containing 16% corn.

Medium temperature range was 160-180° and higher range was 180-200° (for pellet mash entering the pellet mechanism).

Mr. Smith said the temperature of gelatinization of most starches is relatively low (140-180°). What is needed, he said, is moisture plus retention time at gelatinizing temperatures so that moisture has a chance to be absorbed in the starch cell.

The normal hard pelleting process produced 11% gelatinization of starches at low temperature range and 20% at high temperature range. In the low temperature range, they increased gelatinization from 11% in the normal hard pelleting process to a maximum of 39%, an increase of more than 3½ times. In the high temperature range, it was possible to go from 20 to 47.5%, an increase of nearly 2½ times. These increases were obtained without increasing number of pounds per minute of steam.

Mr. Smith said he is certain that the gelatinization will result in improved feed efficiencies. Feeding tests are now being run.

He also reported that there was a substantial reduction in fines where maximum gelatinization was obtained. Pellet toughness was improved in some instances as measured by a new pellet toughness rating system, although results in this test were not as anticipated. Vitamin A retention was reported as good in the low temperature range and nearly as good in the high temperature range of preconditioning as it is on a standard ring type pellet mill operated at the same temperatures.

Mr. Smith said he believes it will be possible to find ways to improve

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gelatinization percentage even further. For example, the corn in this test was ground over a ⅛" screen. Had it been ground over a fine screen, gelatinization probably would have been higher.

RESEARCH ON EFFECT OF DIE SPEEDS—In a second research report, Oak Smith told of Wenger studies on the effect of die speeds on pellet mill capacity, percentage of fines and pellet toughness. Three feeds were tested—¼" complete pelleted pig grower, ¾" 32% protein cattle range cubes and ¼" alfalfa bunk pellets. Three die speeds used were 217, 245 and 311 rpm.

Mr. Smith reported capacity, fines and toughness data for the different feeds and speeds. He concluded that alfalfa pellets similar to those in the test should be produced at high die speeds and at the maximum rate whenever possible. Range cubes like those used should be produced at slow speeds if the plant is willing to produce at lower than maximum rates in order to produce the toughest pellet. For pig grower pellets, die speed does not seem as critical, but the edge seems to be in favor of high speed if one is to produce the toughest pellet.

In connection with his report, Mr. Smith explained and showed a toughness rating system which uses a laboratory shaker and finds the amount of screened pellets remaining after shaking. He pointed out that a standardized toughness rating would be desirable for the industry.

Mr. Smith said that if a single speed mill is to be used, a reasonable amount of study of probable requirements may result in selection of a die speed which will give maximum capacity with an acceptable toughness rating for different types of feeds. He said he believes most feed manufacturers will continue to operate mills with a single-speed drive but that a two-speed mill has certain advantages and in some instances these may offset the added cost.

RESEARCH ON PELLET DAMAGE—Art W. Stegner, Butler Mfg. Co., Kansas City, reported the results of a Butler study of the extent of pellet damage in various types of mechanical handling equipment. The tests were conducted at different speeds in an elevator leg, horizontal screw conveyor, screw conveyors at different angles of elevation and slider belt conveyor. Also certain tests of damage to pellets in loading into empty tanks were made. The objective was to determine amount of fines created. Separate lots of 50 lb. of pellets (Nutrena Shoat 14—3/16" size) were run through each piece of equipment.

Results with the elevator leg show more fines created on the downside of the leg than on the upside. The higher speed of the elevator leg created 8 to 12 times as many fines as the slower speed.

Results on the 8" horizontal auger were not consistent enough to draw conclusions.

Tests of a fall from an overhead auger into tanks showed that the fall into a center draw-off tank resulted in less fines than a fall into a side draw-off tank. Other study showed that more fines are created when spouting from an elevator leg to a tank at an angle than in a direct fall from an overhead auger.

Tests with a 6" internal auger showed that more fines are created at the 45° position than at the 0° position and that more fines are created at a speed of 700 rpm than at a speed of 475 rpm.

Fines from slider belt conveyor handling were less than in most cases with augers.

Average damage in bags, Mr. Stegner noted, is not much less than the cumulative total damage of several types of materials handling systems using feed in bulk.

Mr. Stegner also discussed the need for standards of pellet hardness, and he told of a standard tumbling abrasion test which Butler developed using a simple roller-tumbler tester.

He said feed men can now calculate expected pellet damage in bulk handling by using factors as determined by the standard tumbling abrasion test and applying such factors against the test results in the report, which is part of the Production School proceedings.

EFFECTS OF PELLETING ON MICRO-INGREDIENTS—R. C. Wornick, Chas. Pfizer & Co., Inc., Terre Haute, Ind., presented an extensive compilation of survey information and testing data on the effects of pelleting on micro-ingredients in feeds. Data and opinions were obtained through a survey, published literature and laboratory and plant testing conducted by his firm.

Based on the survey, it was noted, at least 56% of all manufactured feed is pelleted.

Mr. Wornick made the following conclusions:

A volume of over 22 million tons of pellets, crumbles and cubes in 1958 testifies to the importance of pelleting operations in modern feed manufacturing. Yet there is only meager published information on process variables in these operations and on their effects on micro-ingredients in feeds.

A survey of the feed industry was conducted to obtain more light on these matters. The survey showed that added moisture levels during conditioning were 1.3 to 4.9% with temperatures from 113 to 183° F. Instantaneous temperatures in the die were estimated to be above 250° F., while exit temperatures of pellets ranged from 143 to 199° F. Pelleting pressures were estimated to be in the range of 20,000 to 30,000 psi. The percentage of fines recycled averaged 5 to 16% in pelleting, 11 to 27% in crumblizing and 2 to 11% in conveying, binning and packing.

Feed is exposed inside the die to these severe conditions for several seconds. Although potency losses of micro-ingredients as a result of pelleting operation itself are seldom significant, losses in pelleted feeds during

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Feed for Thought

PROVITAMIN A

How efficiently do animals utilize carotene? Carotene has been described as a precursor of Vitamin A or "Provitamin A." Carotene serves as the raw material from which Vitamin A is manufactured by the animal body.

The ability to convert carotene to Vitamin A varies from one species to another and also between breeds and differing age groups within the same breed of animal. Guernsey cattle, for example, have Vitamin A needs similar to other dairy breeds but they are poorer converters of carotene than other breeds. Calves and pigs convert carotene into Vitamin A less efficiently than adult cattle and swine. Conversion of carotene is also impaired by diseases, particularly those which affect the intestinal tract.

Conversion of carotene to Vitamin A has been established with rats and chicks as 0.6 microgram of carotene equivalent to one unit of Vitamin A. This means that one milligram of carotene would provide 1667 units of Vitamin A for the rat and chick.

What about the cow? She is a poor converter of carotene. She loses 75% of the carotene in the conversion to Vitamin A. In other words, one milligram of carotene provides only about 400 units of Vitamin A for the cow.

The hog is also wasteful in converting from the natural precursors of Vitamin A. Older pigs and adult swine use carotene about 40% as efficiently as rats and chicks.

Since Vitamin A is such a critical vitamin, shouldn't we question the wisdom of relying on natural ingredients to supply all or most of it in our cattle feeds? The unreliable amount of carotene in natural ingredients coupled with the poor conversion of carotene to Vitamin A by cattle makes it essential to protect these feeds with a guaranteed amount of true Vitamin A, particularly under stress conditions. One of the characteristics of Peter Hand Vitamin A is that it is water dispersible and therefore more readily absorbed, particularly by the younger animals.

Dry range conditions in many areas these past months have prompted feed manufacturers to take a second look at the Vitamin A in their cattle and sheep feeds. Natural forage is scarce and of poor quality. Feedmen are increasing the Vitamin A levels in their range cubes and ruminant supplements to compensate for the lack from natural sources. Your cattle and sheep formulas may need to be reviewed to consider revision of the Vitamin A levels. Drop us a line today and let us help you.

J. R. LINSNER
Director of Technical Services
PETER HAND FOUNDATION

Look for "Feed for Thought" every month. This popular column appears regularly in this same place (page 14) in the first Feedstuffs issue of each month.

Peter Hand

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storage usually are greater than in mash.

According to estimates obtained in the survey, feeds may be stored from 8 to 12 weeks before being consumed. Therefore, formulas should be adjusted on the basis of tests of potency vs. time, to provide sufficient overage to offset losses which may occur during periods of this length. To obtain meaningful data in stability studies, variables such as non-uniformity of mash and inadequate sampling and assay methods must be avoided.

Prompt feeding of pelleted rations is obviously most desirable, plus adequate inventory control measures, to insure rapid, systematic turnover. These measures will help assure maximum benefits from the many products of science and technology which are included in modern commercial mixed feeds.

ECONOMIC FACTORS IN BULK VS. BAG FEED HANDLING—A project of the research committee of the textile bag industry was to determine distribution costs to commercial feed mills of feeds in bulk, in bags and by the bags-to-bulk method, taking into consideration the effect of returnable bag programs. Information was obtained by mail questionnaire and personal calls on mills, dealers and feeders. The work was done by Container Laboratories, Inc., Chicago, and Charles Zusi, consultant. Mr. Zusi reported on the findings at the school. Distribution costs were taken to include costs of bins into which feed is placed after manufacture (if placed in bins) and other equipment and costs of placing of feed into the feeder's bins or storage area.

The report included per ton costs for the various methods and different areas of the U.S.

The report included tables for the different areas covering such things as storage tanks; filling, weighing, etc., of bags; different types of delivery and bag costs. The costs, it was indicated, covered labor, capital costs, maintenance, etc.

Many mills do not have good figures on distribution costs, Mr. Zusi said. The survey cannot produce standard costs, he noted, but it can present figures which can be used by those considering installation of bulk equipment or extension of bulk equipment.

Using figures in cost tables presented, Mr. Zusi presented examples of bulk vs. bag costs per ton in various areas. For the midwest area, with a 50-mile delivery and using burlap bags, it was indicated that bulk costs might include 56¢ for storage tanks at mill and $3.45 for bulk delivery, making a total cost of $4.01. On bagged feed, costs were shown as $2 for filling, weighing, etc., $2.84 for bag delivery and $3.84 bag cost, for a total of $8.68. In this case, said Mr. Zusi, a mill could not allow more than $4.67 per ton bulk discount without reducing its profit margin.

For the Pacific area, assuming 100-mile delivery, totals were $7.23 on bulk and $11.53 on bagged feeds. For the central area, assuming 150-mile delivery, the totals were listed in the example as $9.92 on bulk and $12.59 on bagged feed. In this case, said Mr. Zusi, a bulk discount of $3 would reduce profit of the mill.

TOUGHNESS TEST—Oak Smith, Wenger Mixer Mfg. Co., in connection with his pelleting research, developed a test to measure pellet toughness, the ability to withstand abrasion when subjected to handling. Mr. Smith is shown here with the laboratory shaker used to measure "toughness" (rather than "hardness"). Pellets are put into the flasks and then shaken rapidly for 20 minutes. Then the pellets are removed from the flasks and the proportion of screened pellets to total net weight of pellets and fines is used as a toughness rating. Mr. Smith said the pellet toughness rating might prove more meaningful and no more expensive than a hardness tester in measuring pellets' ability to withstand abrasion.

For the southeast area, assuming 50-mile delivery and use of burlap bags, the example showed costs on bulk vs. bags-to-bulk. Bulk costs were listed at 55¢ for storage tanks at mill and $3.23 for delivery—total $3.78. Bagged feed costs were listed at $1.75 for filling, weighing, etc., $2.80 for bags-to-bulk delivery and 37¢ for net bag cost—total $4.92. "With the difference of only $1.14 a ton," Mr. Zusi said, "the question arises 'Is it worth while to make a large capital investment in bulk tanks, weighing equipment and delivery trucks?'"

His comments included statements pointing out capital investments required for new bulk installations, reported advantages of bags-to-bulk systems including low capital investment and reduced bag costs because bags are brought back, and uses of returnable bag programs.

COMPLETE RATION PELLETS FOR POULTRY AND SWINE—Phillip C. Wake, J. H. Wake Feed Mill, Oskaloosa, Iowa, noted that, in production of complete pelleted feeds with high grain content, there are a number of things to consider—formulation, fineness of grind, steam requirements, added liquids and types of dies. In connection with formulation, he mentioned that corn is easiest to pellet, while a ration with grain sorghum as the grain portion gives the poorest pelleting capacity. In adding other grains to the ration, production can be stepped up about 15%. Mr. Wake uses a 5/32" screen for grinding of grain for his complete pellets. He also found that replacing ½" hammers with 50% more ¼" hammers and shortening these hammers by ⅛" stepped up grinding capacity.

CONSULTING BOOTHS—Machinery firms and other suppliers had consulting booths like these in connection with the 1959 Feed Production School at the Continental Hotel in Kansas City. The booths gave feed men an opportunity to discuss new developments and problems with equipment firm representatives.

Regarding steam, he mentioned the importance of an unvarying rate of uniform steam and the use of as dry a steam as possible and pelleting at high temperatures.

Mr. Wake generally adds some type of liquids to his complete feeds. These may be fats, fish solubles, fermentation solubles, molasses, etc. For complete pelleted swine rations he uses 3 to 4% molasses in combination with dry steam. When using grain sorghums, molasses is not added because of difficulty in pelleting. This situation has been helped to some extent by adding dehydrated alfalfa meal that is usually used when sorghums are the grain base.

Mr. Wake uses a thicker pellet mill die on these feeds than on concentrates and supplements. A 2½" die has worked out well. Pellet size has been standardized at ¼" for complete swine rations and 3/16" for poultry rations. Die life on the complete feeds has been 4 or 5 times that of dies for protein and concentrate feeds.

In Mr. Wake's operation, the liquids are added in the conditioning chamber along with the steam. The pellets are cooled on a horizontal cooler. The entire plant, which specializes in the complete swine and poultry feeds, is operated by two men.

PELLETING DAIRY FEEDS—Robert L. Stroup, Sprout, Waldron & Co., Inc., Muncy, Pa., pointed out the advantages of pelleting the complete grain ration (not including roughage) for dairy cattle and then discussed various aspects of production. A principal advantage is faster consumption of the feed in milking parlors.

Mr. Stroup, in his extension report, made a number of suggestions. Among them were these: The most practical fineness of grind is when the mash will all pass through at least a 7 mesh screen. In one group of tests in making a ¾" pellet, a ¼" grind was best . . . Moisture affects pelletability by decreasing rate of production possibly more than it affects hardness. One source of moisture is, of course, molasses, which often accounts for 5 to 10% of the ration. Best results in tests have come with addition of molasses at the conditioner. This does not necessarily apply when coarse fiber is present.

Best results are usually obtained when the temperature range of the conditioned mash is between 160 and 180° F. With the average mash it is necessary to raise moisture content to between 13 and 17%.

The range of die thicknesses used most often for a particular size hole in dairy pelleting is (diameter given

first and then thickness range): 10/64", 1⅜ to 2"; 3/16", 1½ to 2"; 13/64", 1¾ to 2¼"; ¼", 2 to 2½".

Field reports indicate capacities of dairy pelleting range between 150 and 200 lb. per h.p. hour, or 15,000 to 20,000 lb. per hour on a 100 h.p. mill.

Mr. Stroup went on to outline ways of expanding pelleting facilities to increase capacity. In this connection, he mentioned that, to add molasses, the best solution is use of a dual speed feeder conditioner on the mill.

In discussing pellet cooling, he mentioned use of a cooler with individually hinged automatic louvers and also a rotary vertical cooler.

He also described development by his firm of a system for automatic operation of a pellet mill. The pelleting operation is controlled by two separate systems, one for the current load on the pellet mill motor and one for the control of the mash temperature entering the pellet dies. Mr. Stroup said use of an automatic system can be especially profitable where long runs are made and/or a large number of pellet mills are run in a line operation.

Mr. Stroup said a survey of feed manufacturers has shown that sales of pelleted dairy grain rations have increased markedly since introduction of this item.

SYSTEM FOR PRODUCING MOLASSES PELLETS ON A HARD PELLET MILL—Will Brooks, Illinois Farm Supply Co., Springfield, Ill., described his plant's system of using a conventional hard pellet mill to produce molasses pellets as well as hard pellets. Pellets with up to about 30% molasses are produced.

In the winter, they preheat the meal going into the feeder screw on the mill by means of a steam coil in the feeder spout. Temperature of the meal going into the conditioner is 65 to 80°. The molasses going into the conditioner is 225°. The mixture going into the pelleting chamber is 200°. It is important that this temperature remain constant. Molasses in the conditioning tank is kept at 95°. It is fed to the pellet mill through a meter flow pump. Steam is not put directly into the conditioning chamber in making these pellets; rather it goes into the molasses line 24" from the conditioning chamber. Putting steam directly into the molasses adds 1½% moisture to it and makes it very thin and boiling hot.

Mr. Brooks tried various dies and settled on a 2½ x ¼" no-relief die. Bentonite is used for dusting to assure uniform appearance. The bentonite is fed directly into the pelleting chamber using a small screw with a varispeed drive. Pellets flow from the machine through an inverted funnel shaped spout to the horizontal cooler. The pellets are produced at a rate of 5½ to 6½ tons per hour average, including time spent on feed changes.

MORE EFFICIENT CRUMBLIZING—Robert G. Bartikoski, Nutrena Mills, Inc., Minneapolis, pointed out that to get a good crumble, it is first necessary to make a firm pellet that will stick together when cracked. To do this, the right formula is needed. A good balance of starchy ingredients and oily or fatty materials for lubrication makes the best formula for pellets that will crumblize most efficiently.

Fat can be added to crumblized feeds when the formula is well balanced with fiber to absorb fat, and binder to get the pellet to stick together.

If the rolls are sharp, properly corrugated and turning at proper speeds, set just exactly equal on each side with the proper opening between them, it is possible to make good crumbles with some "real tough" formulas.

Some firms use two breaks, with the initial break quite coarse and the final break much finer, so that everything that passes the final break is proper size or smaller. When a single break allows too many coarse granules to return to the crumblizer, the steam builds up until it finally chokes the unit down. When two breaks are used, it is possible to allow the first break to be quite coarse, thus requiring a fine granulation of a smaller portion of stream over the second break. Most plants, however, have difficulty in arranging two breaks with-

TESTING DEVICE—Art Stegner, Butler Mfg. Co., is shown with a device used in his Production School research project to compare hardness of pellets. This was developed in connection with his efforts urging industry standards of pellet hardness. Pellets are put into jars and then rolled for one hour on a roller-tumbler tester using a fractional horsepower motor and two typewriter rollers and pulley sizes of 1 in. on a 1750 rpm motor and 8½ in. on one roller. After the tumbling action, the pellets are removed and screened and the fines are weighed back. The figures can be converted to amount per ton damage.

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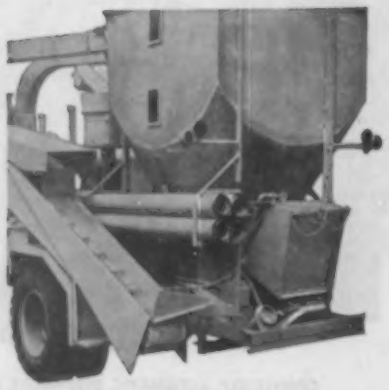

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out another elevation and additional conveying. The extra handling usually produces more fines than are saved by the additional break.

The coarse limit for crumbles generally is not over 4⅛ mesh; the fines limit goes down as far as 22 mesh.

For best crumblizing results, rolls needn't be of large diameter. Rolls from 6 to 9" do a good job. The capacity of a 30" set of rolls should range from 6 to 8 tons per hour. A 36" roll should give 7 to 9 tons per hour. Horsepower requirements are 1 to 1¼ h.p. per ton hour.

PELLETING PROBLEM INGREDIENTS—C. N. Hultberg, California Pellet Mill Co., Crawfordsville, Ind., presented comments on suggestions on the pelleting of problem ingredients like milk by-products, sugar, urea and certain minerals. Milk by-products and sugar are both very sensitive to temperature.

In pelleting formulas high in milk, "in the conditioning, we would reduce temperature to a minimum if a standard thickness die is to be used," Mr. Hultberg said. "Ingredients should be of as coarse a texture as possible. At the 20% milk level, this would provide pellets at low capacity. For normal operation, we would use a 3/16" or ¼" die about 1¼" thick with properly specified entrance on the die hole. By so doing, we would be able to introduce a reasonable amount of steam without drastically affecting the status of the milk on the die surface . . . In a high sugar formula we avoid high temperature at the die surface. We prefer to reduce frictional heat to a minimum. This we can do by proper use of steam if we can specify a die exactly like that used on a milk formula . . . We have not found it possible to run high sugar feeds on standard thickness dies except at very low capacity.

"Our work with feeds containing urea concerned large range pellets. On steer feed pellets containing urea with higher percentages of molasses, produced in sizes from 3/16" to ⅜" diameter, we found no significant effect on capacity or quality due to amount of urea included.

"In production of range pellets in sizes of ¾, ⅞ and 1", with relatively high urea levels, we encountered soft pellets . . . It appeared that the previous statement relative to smaller pellets is correct . . .

"By using a die of standard 4" thickness, but with radical entrance hole, we were able to produce a high quality pellet at normal capacity. The same die produced other feeds, with or without urea, equally well."

Mr. Hultberg said that in the past, it has been assumed that pellets over ½" in diameter should be produced at under 200 rpm die speeds and those under ½" should be produced at speeds of 250 to 400 rpm. More recent tests on varying die speeds showed that many feeds pelleted to better advantage in 5/32, 3/16 and ¼" diameters at low speeds. This is definitely established on the hard-to-run formulas, he indicated. "We therefore feel," he said, "that addition of die speed variation to the pellet mill is essential."

PRODUCTION LABOR IN FORMULA FEED MILLING—Dr. V. John Brensike, U.S. Department of Agriculture, Washington, reviewed a previously reported USDA study of production man-hours required per ton of feed mixed in plants with different volumes, compared with standards for model plants. This study was conducted with the cooperation of Midwest Feed Manufacturers Assn. members.

Dr. Brensike said that a similar study was undertaken recently. This will contain a much more complete analysis for pelleting. Not only labor inputs but equipment costs and depreciation will be analyzed. Likewise, the proportion of capacity utilized will be studied as well as total volume of feed pelleted. It is hoped that this more complete analysis of the pelleting cost center will prove valuable to the industry.

PRODUCTION IS AFFECTED BY FORMULATION—Otis Joyner (general manager), Dr. Charles Lewis (research and nutrition director) and C. E. Swick (production manager) of Kent Feeds, Inc., Muscatine, Iowa, presented a panel discussion which combined some hilarity along with more serious thoughts on sales, nutrition and production views of this subject.

The speakers discussed the necessity for expanded numbers of feeds and special orders to meet feeder needs, demands, research findings and sales programs. They brought out the necessity for close cooperation among all departments. Also, Mr. Swick told of his system for filling special orders. This involved installation of a nearly complete feed mill, independent of the firm's continuous volume production line. With this additional equipment, they can "draw off" whatever tonnage is needed from the continuous system, convey it to special bins and then give final processing. The system also can be used in other ways.

USDA to Buy Lamb for School Lunch Program

WASHINGTON—The U.S. Department of Agriculture recently announced plans to buy approximately 2 million pounds of frozen ground lamb for schools participating in the National School Lunch Program.

Purchases will be made with funds transferred by Congress from Section 32 for use under the National School Lunch Act and will depend upon quantities and prices offered.

The department is buying frozen ground lamb on a trial basis. Frozen ground pork, bought on this basis last spring, was well received by school children and school lunch supervisors, according to USDA. Other meat items also have been made available to schools in past years.

Gresham Chemical, Feed Firms Merge

GRESHAM, ORE.—Merging of Gresham (Oregon) Seed & Feed Co. and Jones-Frandeen Agricultural Chemical Service, both of Gresham, was announced recently.

Ned W. Frandeen will act as general manager of the firm, Gordon (Bud) Jones will be assistant manager and Marne Hudson will be head of the feed department.

Gresham Seed & Feed was purchased last year by McCall Oil Co. The Jones-Frandeen firm was started early this year, specializing in agricultural chemicals and equipment.

Operating as Gresham Seed & Feed Co., the firm will offer a complete line of farm and garden chemicals, spray equipment, garden tools, animal feeds and coal.

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A.	32	21	11	28	28	0	100%
B.	95	76	19	112	108	4	79%
C.	80	34	46	68	55	13	72%
D.	68	52	16	68	64	4	78%
E.	74	38	36	79	72	7	81%
F.	83	69	14	78	76	2	85%
G.	60	34	26	44	39	5	81%
H.	36	27	9	28	26	2	77%
I.	16	11	5	16	15	1	80%
J.	32	16	16	28	25	3	81%
K.	48	41	7	60	59	1	86%
	624	419	205	609	567	42	79.5%

INDICATION OF SEVERITY OF INFECTION

Degree	1st Test	2nd Test
Slight	94	30
Infected (Mastitis)	66	9
Chronic (Mastitis)	45	3
Total	205	42

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GENERAL VIEW—This is a view of the "hog motel" at Oakland, Ill., where 500 hogs are fed in 10 pens of 50 pigs each. The feed mill operated by the Miller brothers is to the right in the background.

'Hog Motel' Operators Plan Expansion, Make Changes in Payment Policies

By Al P. Nelson
Feedstuffs Special Writer

After four months of operation, how is the nation's first "hog motel" at Oakland, Ill., doing?

Max and Fred Miller, brothers who own and operate this 500-pig establishment in connection with a Kent feed dealership and a new feed mill, say they're satisfied. But they also think some changes need to be made, so they're planning a few revisions of their policies and putting into motion some expansion ideas.

The Miller brothers have had their "motel" in operation since May, and in that time they have come up with these ideas for improvement and expansion:

Optional pay plans—Farmers who have contracted with the Millers to feed and manage their hogs now pay 2¢ per pig per day for housing and care, with veterinarian care, medication and feed extra. From now on, they say, farmers will contract for pen space (a pen, 15 by 40 ft., will house 50 pigs) in advance at a rate of $300 per year. Thus, it will make no difference how many pigs up to the 50-pig limit the farmer keeps in the pen. The yearly rate is the same. An alternate payment plan is to be based on gain per pound—probably 1¢ lb. Details of this plan are being worked out.

Disease control—When the "hog motel" was opened, the Millers stood the cost of vet care and medicines. Now these costs will be billed to the hog owners.

Max and Fred Miller report that the only disease problem encountered this far has been tail biting in one batch of hogs. But this trouble, which resulted in several pigs becoming infected, has been stopped, they report, through the use of an Iolen preparation made by Corn States Laboratories.

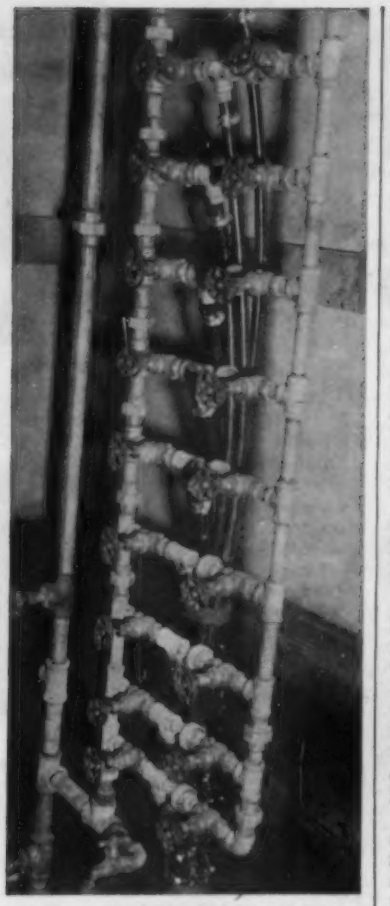
The Millers have a medication room at one end of the "motel." Soluble medicants can be put into a 300-gal. tank, and a series of valves permits the Millers to put the medicants into one, two or all pens as desired.

Expansion—The Millers plan to build another 40 by 210-ft. finishing house to house 700 hogs. Their original 40 by 150-ft. building houses 500 hogs. The new building, of pole type construction and covered with Kaiser quilted aluminum sheeting, will cost some $15,000.

Bedding—The Millers are experi-

PEN OF PIGS—Here's one of "hog motel's" 10 pens of pigs. The Millers have plans for construction of a second building which will house 700 pigs in addition to the current 500.

FEED MILL—A close-up of the feed mill is pictured here. To the left is a grain drier which the Millers sell and erect. About 20% of the feed mill's volume is absorbed by the "motel."



MEDICATION SYSTEM — View through door of medication building shows valve arrangement leading from a 300-gal. tank of medication. These valves distribute the liquid to the pigs as necessary.

menting with corn cobs and straw to see if the combination will keep pen floors drier and provide more and better manure for their 500-acre farm surrounding the "motel" and feed mill area.

20% of Mill Output

The hog boarding operation absorbs about 20% of the feed mill's total output. And, say the Millers, they are gaining new hog customers because of their feeding project. "It's like a large demonstration program," says Max Miller. About 1,500 farmers and others have visited the mill and motel since it was opened May 1.

The compact feed mill operated by the Millers has two 2-ton Kelly Duplex mixers and a 40-h.p. Bryant hammermill, with 20 h.p. on the fan. Each of three inside Hoosier bulk storage tanks has a capacity of 7 tons. Now they are used for storage of grain, but will be used later for storage of bulk concentrates. In addition, the Millers have two Butler metal bins which will be used to store complete feeds.

Other equipment includes a K&R hoist, a Fairbanks 10-ton scale, a 30-ft. Universal elevator leg and a Suttle weigh buggy. The Millers can run corn from a dump pit into bins or into the hammermill. Corn is ground when the mill is not busy and then put into the bins for storage. This facilitates quick mixing when the orders come in.

The Millers have 6,000 bu. of corn storage in a metal bin outside the mill. The bin is equipped with drier and aeration equipment. A bin like this costs $3,000 (Black, Sivalls and Bryson) and the Millers sell and erect such bins for customers. As of Sept. 1, the brothers had sold and erected 18 of these bins in their trade area.

Feeding Results

The Millers' detailed records show what they did with a group of 50 pigs that was turned over to them May 5. The pigs were off feed and weighed

WEIGHING — Fred Miller (left) watches as his brother, Max, moves grain from Hoosier tanks into weigh buggy. These tanks will be used later for bulk concentrate storage. Now they hold grain.

BULLETIN BOARD—Fred and Max Miller have a bulletin board outside their feed mill and warehouse. They use it to list hog market quotations and other information for customers.

GIVE YOUR FEEDS A LIFT!

Blackstrap molasses is your most economical source of carbohydrates *plus*. You should be using *more* molasses in more formulas. The very best blackstrap comes from . . .

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Executive Offices: OAKLAND, PA.
Phone: Livingston 8-5900 (Philadelphia)

this prize cow gives milk-a-plenty

This prize cow wasn't protected by the new
Stearns INDOX V PLATE MAGNET

Now you can get the best livestock-saving, magnetic protection ever. It's the new Stearns Indox V plate magnet — pound for pound, size for size, the best, lowest-cost "hardware" remover in the business. The reason is Indox V — a new powerful, oriented ceramic magnet that only Stearns can offer you.

Immediately available for all feed machinery

This new Stearns Model 50 magnet fits present designs of hammer mills, burr stone mills, rotary cutters, feed mixers, conveyor feeders, other similar equipment. It comes in sizes from 4-inch to 48-inch.

For the very best livestock and equipment protection against "hardware," insist on a Stearns Indox V plate magnet. Your Stearns representative can prove its superiority with a demonstration. He'll prove *it's the lowest cost, too.*

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BARN CLEANER—Manure is moved out of the pens with a Jamesway barn cleaner, then dumped into manure spreader and hauled into the fields.

an average of 42 lb. on admission and had been vaccinated. They received cholera serum and Terramycin, and only one pig was lost.

On May 28 these pigs averaged 75½ lb. Their rate of conversion was 2.56 lb. of feed per pound of gain and their feed cost was 9.8¢ lb. (using ground corn and mixed feed). On July 1, the pigs averaged 138 lb., with a feed conversion rate of 3.95 and a cost of 11.9¢ lb. They gained 2 lb. daily the last 30 days of the period.

The conversion rate on a lot of 35-lb. pigs was 2.1 lb. of feed per pound of gain, while for a group of 185-lb. pigs the conversion rate was 4.4.

One farmer, who had 48 pigs in a "motel" pen for 70 days, paid $67.20 in labor, housing and management costs at 2¢ day. Feed costs were extra.

The Millers stand the feed loss on dead pigs. Only one pig had died up to the time this reporter interviewed the Millers, amounting to a feed loss of $3.60.

The Millers' records indicate that a 35-lb. pig eats about 2½ lb. of feed daily, while a 175-lb. pig eats approximately 8 lb. daily.

"Motel" pens are cleaned once a day, usually every morning. Manure is pushed into a centrally located Jamesway barn cleaner, dumped into a Case manure spreader and hauled into the fields with an International Harvester tractor.

Ten Hawkeye feeders, each with a capacity of 2,500 lb., are filled as needed with Kent feeds with a Hiedler auger wagon. Each pen has a Hawkeye waterer.

Water spray nozzles installed over each pen have helped keep pigs comfortable even during the hottest weather.

L. Roy Joins American Scientific Laboratories

MADISON, WIS.—Lucien Roy has joined the American Scientific Laboratories, research department, as a biologist in research services.

He is assisting in various studies of diseases affecting poultry and large and small animals.

Prior to coming to ASL, Mr. Roy did clinical diagnostic work for Armed Forces and civilian medical clinics. He is a graduate of Central State College, Stevens Point, Wis.

Ultra-Life Laboratories Makes 3 Appointments

Dr. S. Tsang

Dr. G. H. Strite

ST. LOUIS—The appointment of Dr. G. H. Strite as head of the poultry nutrition division of Ultra-Life Laboratories, Inc., was among three recently announced by E. L. McKee, president.

E. W. Rosener

Dr. Simon T. L. Tsang and Ernest W. Rosener also joined Ultra-Life.

Dr. Strite will supply poultry ration formulations and other nutritional services to feed manufacturers using the Ultra-Life program. He is a graduate of Cornell University and received his Ph.D. degree from Ohio State University. Prior to joining Ultra-Life he served in technical capacities with the Dow Chemical Co., Dawe's Laboratories and the Ohio Farm Bureau.

Dr. Tsang, as a member of the firm's poultry division, will provide feed formulation, nutritional advice and other technical services to Ultra-Life feed manufacturers and customers. He received his M.S. degree in animal production at Utah State University and another M.S. degree in animal nutrition at the University of Illinois. He attained his Ph.D. degree in animal nutrition from Michigan State University.

Mr. Rosener, appointed advertising manager for Ultra-Life Laboratories, Inc., had been with the Dr. LeGear Medicine Co. prior to his present position.

Representative Named

PEORIA, ILL. — Vernelle (Red) Peters has been named eastern Illinois representative by the Mavis Co., Peoria.

Mr. Peters formerly assisted in the operation of Community Mill at Princeton, Faber Industries in Mason City and Snooks Mill at Bloomington.

He replaces Frank Sells, who is now in the oil business for himself.

Dura-Buket Reduces Fines 22.2%...

elevating cold pellets in Dura-Buket*

- Stops Caking
- Can't Rust
- Strong and Shatter-proof
- High Speed and Lightweight
- Spark and Static-proof

*Special Plastic by Fiberite Corp.

Check these actual test results which proved that fines from cold pellets are substantially reduced by replacing metal buckets with DURA-BUKETS, the amazing plastic elevator buckets.

proved — 2 tons of cold pellets screened, then elevated in metal buckets, contained 658 lbs. of fines . . . a costly 13.8% of feed to be repelleted!

proved — 2 tons of cold pellets screened and elevated on the same leg with DURA-BUKETS in place of metal cups contained only 470½ lbs. of fines . . . 22.2% less fines!

proved — If you pellet 300 tons per week, with DURA-BUKETS you will save over $1100 per year in reduced fines. With this savings alone, you more than pay for a DURA-BUKET installation because on the average elevator leg, the cost of DURA-BUKETS is only $325!

You slash bucket replacement costs, too, by switching to DURA-BUKETS.

STOCKING DISTRIBUTORSHIPS ARE AVAILABLE

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It's continuous!

. . . like the production and availability of Solulac! Because it's produced every week of the year, you can formulate your feeds with Solulac and be sure of a continuous supply. Make use of the high nutritional values of Solulac, its GFF (Grain Fermentation Factors — unidentified growth factors found exclusively in Distillers Feeds) and vitamins. Guaranteed to be free flowing in 50 and 100-pound bags or bulk carloads. Just write, wire or phone. And remember, Grain Processing Corporation is also a continuous source of corn distillers dried grains.

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JOE BROOKS

BY AL P. NELSON

Feedmen Can Work Together

Quite a few feed dealers turned up for the monthly meeting of the Douglas District Feed Dealers Club held at the White Swan Dining Room near Hansen's Creek. The dealers were all competitors, and yet they had sense enough to sit down at a dinner meeting once a month and review the areas of the feed industry in which they could cooperate.

By meeting each other once a month, eating together, discussing things together, they discovered that each of them was human and not price cutting ogres from another planet. Over the years this competitive fellowship had resulted in many excellent cooperative ideas. One was the creation of a Dairy and Egg Palace roadside restaurant near Hansen's Creek. The restaurant featured dairy and poultry dishes and distributed recipes to interested persons.

The feed dealers also cooperated in having a big club booth at the fairs in the county. They advertised credit conditions as a group. They promoted and advertised quality feeding on a balanced feed program, and they ran many ads urging farmers to keep better cost records on feed and other farm costs.

Pete Johnson, a dealer from Cedarville, was president, and after the big meal in the air conditioned dining room, Pete banged a spoon against a coffee cup. "Fellows," he said, "let out your belts a notch and let's get down to business. We've got a full program."

Routine business of the club was disposed of within a half hour. Then Pete said, "Fellows, Joe Brooks has an idea he'd like to present to us."

Brown-haired, square-jawed Joe Brooks got up and looked over the crowd of dealers. "Men," he said, "many of you like me have been members of this district club for more than 10 years. You have witnessed the little and big revolutions which have taken place in farming and feeding during that time. More are to come, and all of us have to adjust to these changes.

"But there is one thing that does not change and that is the average person's need for good fresh eggs and milk and other dairy and poultry products. Many of you are worried about the drop in per capita consumption of eggs the last few years. So am I. Let us not wait for the state or federal government to do something about it. Let us start doing something right in our home county to raise the consumption of poultry and dairy products."

"How, Joe? Figure we're any smarter than that bunch down at Washington?" The dealer asking the question was cynical.

"Maybe we are," Joe said. "Lots of times I think we are smarter—in our way. I think I have a plan through which we can stimulate public interest in eating more eggs and poultry meats and consuming more dairy products."

"Go ahead and tell us," said one dealer.

"I try never to go off half-cocked," Joe said slowly. "I like to draw upon the experiences of other merchants. Many of them advertise with metal roadside signs, about 2 by 3 ft. They place these on their trucks, on farm barns and on fence posts. When the public sees these signs, they read them, and a buying impression sticks in their minds."

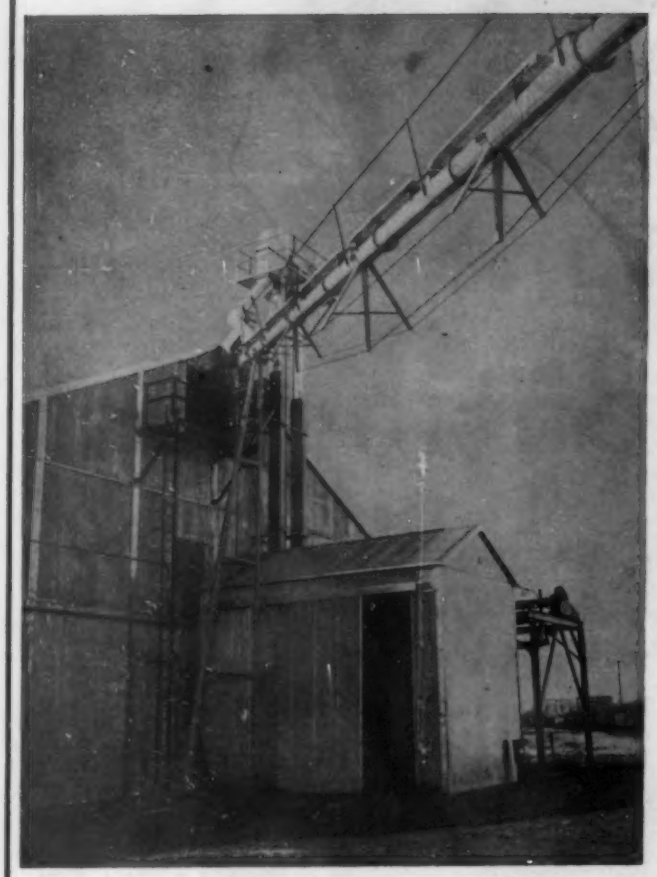
"Yeah?"

"And so," Joe went on," I found out that if you buy such signs in quantities of 500, you can get them for about 90¢ each. Now I propose that this club order about 500 such signs, with each dealer paying for 25 or 50 of them, depending on how many he can use. These should be good, colorful signs and the copy would urge people to buy more poultry and dairy products for better health. The copy should also play up the fact that such products are very inexpensive in comparison with many other foods. I am sure our friend at the newspaper can help us work up slogan type copy."

"You mean that if I bought 50 such signs it would cost me about $50, plus the cost of erecting them?" asked Emory Backhuber, a conservative dealer. "And I wouldn't even have my name on them?"

"That's right," Joe stated. "We've

FORSTER BUILT



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Gentlemen: We are interested in more information.

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Four men...four problems

RALPH JAROCH, WAUKESHA, WIS. "Four weeks after caging my birds they were laying about 20%. I tested nf-180 on one row — 418 birds — and in two weeks they jumped from 138 to 358 eggs a day. They averaged 75% right through 5 hot months when I usually had a drop. Now all my birds get feed with nf-180."

ROBERT KELLER, NOTTINGHAM, PA. "I produce around 1150 dozen hatching eggs a week. After testing nf-180, I switched entirely to it. And the last three hatches came off at 87% . . . paid me a bonus of $172.00 in one month. I also like the steadier production nf-180 gives."

J. RUSSELL McKARNS, WEST UNITY, O. "Four years ago I began losing hogs to necro and bloody dysentery. We used some other treatments without results, then my feed company said to try nf-180. We tested it on half the sick pigs and in a week they were back pretty near to normal . . . and didn't come down with scours again. If it hadn't been for nf-180, we'd have been out of the hog business."

IAN S. THOMPSON, NEW HOPE, PA. "In these days of keen competition, every avenue must be employed to hold up production and cut costs. And I honestly think that to make out in the egg business, you have to have nf-180. It's cut my mortality to the lowest ever. My feed conversion is running 3.5 lbs. to a dozen eggs. After 14 months of lay, my old birds are still laying at 60-65%. I plan to keep my birds an extra 4 to 6 weeks."

Each got fast, effective help with good feeds containing nf-180

Feed company research shows nf-180 even surpasses claims

These four men are just a sample of the thousands who have switched to nf-180 . . . often after doing their own private testing beforehand.

Several major feed companies have tested nf-180, too. One company with extensive research farm facilities found in making its own comparisons that results considerably exceeded the conservative claims which have been made by Hess & Clark. As a result, that company now includes an nf-180 medicated layer ration in its line of feeds. (Many other feed manufacturers also regularly produce and sell nf-180 medicated feeds for poultry and swine.)

You can list these benefits on your own feed tags

With nf-180, you can make your feed tags more than a routine listing of ingredients. Actually, nf-180 can turn your feed tag into one of your most effective sales tools. Why? Look at the benefits you can promise when nf-180 is in the feed:

Layers (continuous low level): Increase egg production, improve feed-egg ratio, extend egg-laying period, maintain greater laying performance during stress, improve hatchability and increase production in the early laying period.

Swine: Treat necro (bacterial enteritis, necrotic enteritis, black scours) and vibrionic (bloody) dysentery.

Booster feeds: The nf-180 label carries more poultry disease prevention, treatment and control uses than any other feed medication today.

We urge you to get the full facts on nf-180 medicated feeds and how they can be of service to you. Write or wire us . . . or ask your Hess & Clark salesman for new information which he can supply.

HESS & CLARK
ASHLAND, OHIO
Division of Vick Chemical Company

nf-180®
brand of
furazolidone

Red Foley appears every Saturday on Hess & Clark's NBC Monitor network radio program — 140 stations. He'll be telling thousands of egg producers the benefits of nf-180 medicated feeds for improved egg production. To urban listeners he'll promote new ideas for enjoying the "Golden Goodness of Eggs."

NT-9-8

got to bear in mind the long range value of such signs and their copy. When you come to a farmer, Emory, and ask his permission to erect such a sign on a highway fence post or on his barn, or maybe even on his farm truck, what is he going to think?"

Bill Edwards, a tall, tanned dealer, chuckled. "Why, heck, he is going to think that here is a feed dealer who is helping farmers build a bigger market for poultry and dairy products. He is not only thinking of filling his pockets with our money spent for feed. He is actually thinking of our welfare, too."

"Right," chorused another dealer, "Joe, you are right. We have to do something like this. There should be a sign like that on every bulk truck and smaller vehicle operated by every manufacturer, feed mill owner and feed store proprietor in the U.S. Holy cow, if every feed man used signs like this, it wouldn't cost each fellow too much—the signs would last for several years at least—and we would really get coverage, and I don't mean maybe."

"I agree," spoke up another dealer. "You threw out an idea that has started me thinking, Joe. Why every farmer who raises poultry and livestock and every feed dealer who sells to them has been asleep at the switch. What wonderful advertising opportunities we have been missing."

"What do you mean?" asked Emory Backhuber, who was slow to convince.

"I mean," replied the other dealer, "that every feed dealer and every farmer, should have a darn good sized billboard somewhere on his premises, urging people to eat more poultry and dairy products for better health. And I agree with Joe on emphasizing the economy angle of these products, too. My Heavens, when I think of it, I can't remember even five farms in the trade area I serve that have signs mentioning dairy or poultry products. By Gosh, I haven't a sign either, and you can bet your last bag of cottonseed meal I'm going to put up a big one."

Enthusiasm continued, and after a half hour, the club took definite action. Joe was appointed chairman of a committee to direct the promotional campaign and take orders for the signs. It was also agreed that one member was to approach farm groups in the county and try to get them to cooperate in placing and paying for billboard type signs on every farm, plugging greater consumption of eggs, meats, dairy products, etc.

"By heck," said Pete Johnson, the president, as he and Joe turned out the lights of the meeting hall. "I really think the boys mean business. I think the feed men of this county and the farmers can put on an effective and inexpensive advertising campaign that will sell more farm products. It's been a fruitful meeting, Joe."

"I think so, too," Joe said. "I think all of us will feel better doing something practical about the problem right in our community, rather than looking toward Washington to do something to help us."

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34% PROTEIN
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Year after year the demand for Kellogg's famous Old Process Linseed Oil Meal continues. Livestock feeders know from experience that it pays them to use this extra effective conditioner.
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Complete facilities for both truck and rail shipments

AOAC to Observe 75th Anniversary

WASHINGTON—The 75th anniversary of the Association of Official Agricultural Chemists will be celebrated here at the Shoreham Hotel Oct. 12-14. An estimated 1,000 persons are expected to attend the annual meeting.

Some of the more than 50 different fields to be covered during the program are: Determination of preservatives in foods, application of gas chromatography to the analysis of distilled beverages, bioassay methods for poisonous fish, analysis of vitamins, determination of drugs in feeds and determination of extraneous materials in foods.

Several nationally known speakers are to appear on the program.

"Pesticide Residues in Foodstuffs: Analytical Philosophy, Technology and Capabilities in Europe" will be the title of an address by Dr. Francis A. Gunther, who recently returned from Europe where he reviewed the field of his specialty. He will receive AOAC's 1959 Harvey W. Wiley award at the association's annual banquet the evening of Oct. 12.

The new food additives amendment to the Federal Food, Drug & Cosmetic Act, and its requirement for practical analytical methods, will be reviewed by L. L. Ramsey, chief, methods research branch of the Food & Drug Administration.

The AOAC meeting will be followed by meetings of the American Feed Control Officials, Fertilizer Control Officials and Pesticide Control Officials.

AOAC was founded in 1884 to establish reliable methods of analysis necessary for proper enforcement of fertilizer laws. As additional laws were passed for consumer protection, AOAC's work expanded into other fields such as feeds and pesticides.

Tranquilizer Used In Turkey Research

CLEMSON, S.C.—A tranquilizer is being used in studies at the South Carolina Agricultural Experiment Station here, which are being conducted by Dr. B. D. Barnett, department of poultry husbandry, in connection with heart disease in turkeys.

The primary circulatory affliction in turkeys was described by Dr. Barnett as a dissecting aneurysm of the abdominal aorta. He noted that since the disease is probably due in part to the unusually high blood pressure in turkeys, present research is being directed toward lowering the blood pressure.

"The tranquilizer, which is reported to reduce blood pressure and also stimulate the rate of growth among certain animals, is sufficiently economical that it can be mixed into poultry feeds, if it is found to be effective," Dr. Barnett said.

Opportunities for preventive research in the area of heart disease in turkeys were developed when Dr. Barnett discovered that a toxic substance called beta-aminopropiontrile (BAPN) produces the disease when fed to turkeys in small quantities.

Additional work of this type is being conducted at the Universities of Wisconsin and Minnesota.

REMEMBER TO ORDER
CHASE BAGS
There's None Better!

SERPASIL®... the revolutionary new feed additive to control

SERPASIL (reserpine premix-CIBA) CONTROLS STRESS. This new and remarkable product for layer and broiler feeds provides increased feed efficiency, reduces feed wastage, increases performance during hot weather and reduces harmful response to adverse conditions such as crowding and disease.

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GENTLEMEN: *Please send me your* FACT BOOK *about new* SERPASIL PREMIXES *for layer and broiler feeds.*

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SERPASIL

The first feed additive tranquilizer that improves productive performance of layers and growing chickens through the relief of costly stress.

WHAT IS SERPASIL?

SERPASIL is the CIBA brand name for reserpine—a pure, crystalline alkaloid derived from the root of a small, wild shrub found in parts of India and other tropical areas. This shrub is of the rauwolfia species. In ancient times the whole root was given by healers for an amazing array of ailments, from dysentery to insanity. These old medical practices and beliefs had great basis in fact, it appears. For, when reserpine, first isolated and purified by CIBA was introduced, it met with instant success in quieting the mentally ill, calming the neurotic, and aiding the hypertensive and the aged.

Now, the known stress relieving effects of SERPASIL can be applied to poultry. Inclusion of SERPASIL in layer and broiler feeds will provide important benefits when poultry is raised under usual commercial conditions . . . benefits to the poultryman and the feed manufacturer.

WHAT SERPASIL DOES

SERPASIL premix counteracts the costly effects of stress due to crowding, temperature, environmental changes and other flock tensions. It calms the birds — lets them make fullest use of the feed they eat, helps keep them from wasting feed at the hopper. Experiments conducted under adverse temperature conditions showed it to promote egg production, improve shell thickness and egg quality when compared to controls. Mortality, associated with heat or other stresses, is minimized. The modest cost of SERPASIL added to feeds is more than offset by reduced wastage of feeds. And, tissues and eggs from chickens raised on a concentration of 1 ppm SERPASIL are entirely free of reserpine.

For more facts about this new, original concept in poultry feeding, mail the postcard at the bottom of the page today.

WHAT IS CIBA?

CIBA is a 75-year old international chemical organization manufacturing pharmaceuticals, dyes, plastics and related chemical products. Such products are primarily developments of the extensive research facilities of CIBA. For example, CIBA was the first to isolate, identify and introduce reserpine for human treatment, as well as poultry. CIBA was granted a U. S. Patent on the chemical, reserpine, in 1956.

In addition to its world-wide leadership in research, the company is also proud of its reputation for quality products. The word CIBA on the bag indicates painstaking analysis insuring that the contents meet highest standards.
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Trouble Free Pneumatic Unloading	✓	✓	✓	✓	✓
Electromagnetic Governor	✓				
Electrically operated extension loader	✓				
20" Hammermill	✓	✓			✓
Mixer, safety switch controlling feed table	✓				
Corn Sheller	✓	✓	✓		
Electro Hydraulic Feed Table Lift	✓				
Automatic Weighing Scales	✓			✓	
S-98 Turbulent Mixing Action	✓				

"OLD TYPE" machines cannot compare . . . To see is to know SECO . . . The nations most modern and advanced Mobile Feed Mill.

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Alabama Feed Firm Has Diversified Contract Feeding Program

By Special Correspondent

The Valley Feed Co. of Scottsboro, Ala., usually has half a million broilers on feed, but does not depend upon them as its sole source of income. The firm has its own feed mill and hatchery, several large flocks of breeder hens and is now expanding its turkey and swine operations.

"We're about the only one in this part of Alabama feeding out turkeys," said Elmer Snyder, general manager and secretary-treasurer of the organization. Other officers are I. E. Airheart and his son, Gene D., who is vice president.

"Broilers haven't paid off every year," Mr. Snyder continued, "so we are continually looking for something else that will keep our feed mill busy."

Turkeys

At the beginning, Mr. Snyder used two kinds of turkeys—the small ones which are finished out at an average weight of 8 lb., and the larger birds which sell when the hens are 14-15 lb. in weight and the toms at 20-25.

"We are gradually swinging away from the smaller birds," Mr. Snyder said, "and for several reasons. The poults cost us an average of 40¢ apiece by the time we get them out on the farms, while the others are only 5-10¢ more. And, there's a lot more poundage on the big ones.

"Another reason is that the larger birds can be grown mostly on range. Not so much equipment is needed, and we get an excellent feed conversion."

Contract

A farmer who wishes to grow turkeys on contract for the Valley Feed Co. must sign a contract. He agrees to furnish housing, equipment and utilities, and tend to the birds. In some cases, farmers have empty broiler houses which they use for keeping the poults.

The company retains ownership of the birds, furnishes all feed in bulk form and provides for field supervision, medication and all hauling.

When the birds are sold the farm grower receives an average of 2¢ lb., but this may be more, providing he has achieved a high feed conversion and low mortality rate. Most growers have had no trouble raising turkeys, and about the only protection needed for range birds are some lights at night to keep away predators and dogs.

"We've done quite a lot of experimenting with turkey feed and are getting better conversion rates than at first."

The firm ships in and flies in turkey eggs from Arkansas and California, hatches them in the plant's own hatchery and delivers the birds to the farms soon after hatching. The finished birds are trucked to markets at Chattanooga, Tenn., and Florida.

When he seeks a new producer, the company manager tries to find someone who will agree to grow a meadow, which helps cut down on feed costs. He also tries to find responsible farmers who will raise enough turkeys to make it a worthwhile enterprise.

The firm is also feeding some turkeys on its own farms. The birds are managed in much the same way, with mill hands being utilized more in the work.

"I think that will be the trend in much of this area," said Mr. Snyder. "Feed mill owners feel that they can control the feeding programs more by keeping the birds on their own farms and eliminating the farmer entirely. A lot of this will depend upon the farmer himself. If he tries to learn good management and works hard and cooperates with the company, then he will continue to play an important role in contract feeding."

The Valley Feed Co. turkey program is now in its fifth year and has expanded considerably since 1958.

Swine Contracts

Another project, in its second year of operation, is contract feeding of swine.

"This is a more flexible contract than we use on turkeys," Mr. Snyder explained, "because quite a number of farmers were already raising hogs in this area.

"Here is how one type of contract works: Where the owner has his own sows and boars, we agree to furnish all feed from the time the sow is bred until the pigs are weaned. The farmer does not pay for the feed, but he sells us all the pigs for $4 each."

Another plan is where the company furnishes the pigs to contract feeders. All feed, medication, field supervision and hauling is the company's responsibility. The farmer does the feeding and chore work. Then, when the hogs reach a top weight and are sold, the farmer receives 2¢ lb. after the original weight of the pig has been subtracted from the selling weight.

"Some growers like this plan better," said Mr. Snyder. "There is less capital required and not so much responsibility on their part."

The company is just getting started on its swine program, and thus far, is raising only a few hundred hogs a year. When they decided to expand it, the company officials selected two influential farmers in different areas. Then if the plan was worthwhile to the farmers, there would be no trouble finding several others willing to come into it.

Feed, Mill Operations

"Any feeding program depends about 75% on the feed itself," said Mr. Snyder. "This means not only the proper rations, but the cost of feed and mill operations. We had to add 40 tons of storage in wooden bins last year and other 42 tons in Butler steel bins. We already had quite a lot of equipment, including grinders, mixers and bulk trucks."

The company ships in whole corn and other ingredients and mixing concentrates. The complete feed is manufactured at the mill. Practically all the kinds of feed made for broilers, breeder hens, turkeys and hogs are handled in bulk form.

"We are continually trying to streamline operations a bit more," said the manager. "This is a never-ending process if you are to stay in business—handle more volume at less expense and for a lower profit margin. Unfortunately that is the pattern in the feed world, and the trend is becoming more evident each month."

MANAGER—Elmer Snyder, general manager and secretary-treasurer of the Valley Feed Co., has added both turkeys and swine to the firm's contract feeding program.

In addition to a full-time job of running the company's multi-purpose business, Mr. Snyder also holds several offices in state and local agricultural fields. He is a secretary-treasurer of the Alabama Turkey Assn., a director in the Alabama Feed Assn. and president of the Jackson County Poultry Assn.

Just recently he helped form the Alabama Poultry Exchange near Cullman, an organization for selling broilers at an auction. Mr. Snyder was elected one of its nine directors.

JOB SHEET—Shown is Valley Feed Co. worker reading a job sheet on the bulletin board located near one of the electric panel boards in the mill. The job sheet instructs the employees on what type of feed to make and how much is needed.

SACKING FEED — Even though most of the feed at Valley Feed Co. is now delivered in bulk form, the firm still fills sacks for test feeding. The mill added another 42 tons of storage in 1958, complete with grinders, mixers and other equipment.

BULK TRUCK—Shown is one of the bulk delivery trucks the Valley Feed Co. uses to carry feed to contract feeders of broilers, breeder hens, turkeys and hogs. The truck can be loaded in a few minutes and handled by one man.

MISS GOLDEN GOODNESS—Art Linkletter, network television star, gazes at the egg he has received from Sancy Graham at the Indiana State Fair recently. Miss Graham, 15, a 4-H member of Franklin, Ind., was chosen "Miss Golden Goodness of Eggs." The promotion, designed to persuade the consumer to eat more eggs, was created by Hess & Clark, Inc., division of Vick Chemical Co., and maker of nf-180 for use in feeds.

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FEED CONTROL COMMENT

By BRUCE POUNDSTONE
Secretary, Association of American Feed Control Officials
Kentucky Agricultural Experiment Station, Lexington

Is This Feed Special?

A manufacturer has customarily sold a feed made up of a mixture of pellets and ground feed. In certain areas of distribution it is desirable to mix molasses in the feed that goes into the pellets as well and into the ground feed portion. In other areas molasses is limited to the pellets in order to have a dry appearing feed.

The feed is the same in both instances. The manufacturer desires to identify this difference in composition. He proposes to indicate this by having an additional tag bearing only the word "special."

From the viewpoint of feed control the special tag idea should be discouraged. Labeling information should be confined to a single tag. The word "special" is not too acceptable since this implies something far more significant than shifting the molasses to the pellets only.

Most states permit a rubber stamp identification to show some particular character with respect to the physical nature of a feed. The words "pellet form," for example, may be stamped on a feed tag that may otherwise be sold in ground form. Since the difference under consideration is physical in character, stamping the word "dry" on the regular tag may be satisfactory. The word "Miami," which may refer to the area within which this particular product is to be sold, may be used. If "special" is insisted upon, some states might accept the wording "special for Miami." A combination of numerals and letters that could have no meaning whatever to anyone other than those interested in warehousing and loading could be proposed.

Use of a second tag should be discouraged and reference to the product as "special" is not acceptable.

◆

Fat Determination In Baked Dog Foods

The official AOAC method for determining the amount of crude fat in a feed calls for what is known as the ether extract method. The principle involved is: The sample is washed in an ether for a period of from three hours upward until most of the fat is extracted. The ether is then evaporated and the remainder is weighed as fat.

In the process of baking a baked dog food, it appears that fat is bound up in such a way that the regular extraction by the ether method does not get all of the fat. Where this is true another method is resorted to—the acid hydrolysis method. This is done by digesting the sample in a hydrochloric acid solution, followed by several extractions. This will sometimes yield a larger amount of fat. It is through such cases that it is concluded some of the fat was bound up in such a way that the ether extraction method would not extract it.

The acid hydrolysis method is considerably more detailed and takes more time. Many states, therefore, use the ether extract method and check only with the acid hydrolysis method when a deficiency appears by the ether extract method.

◆

Meeting Room Change

The meeting room of the States Relations Committee at the Shoreham Hotel Oct. 13, has been changed from the Park Room to the Main Ballroom. This meeting will be held in connection with the annual meeting of the Association of American Feed Control Officials. The program as printed shows the Park Room.

California Veterinarian

BERKELEY, CAL.—A recommendation that the University of California provide a veterinarian to devote full time to improving the swine health and disease program over the state, was made at a meeting in Berkeley recently.

The suggestion was made by Arthur Adrian of Escalon, chairman of the California Farm Bureau swine section.

Funds will be solicited from the industry with the hope of getting the program underway shortly.

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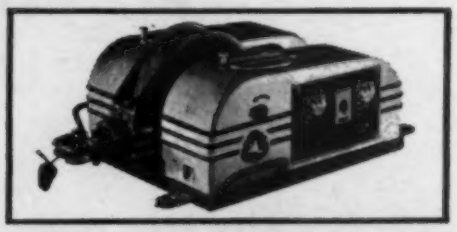

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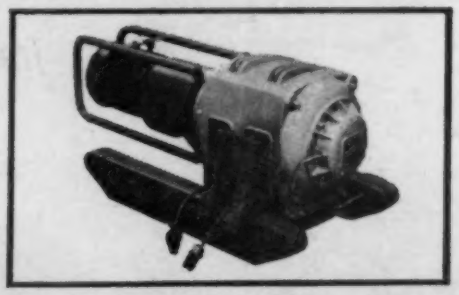

MOBY – A duplex unit, basically the same as the BULLY model. Output – 80 tons of soft feed per hour. Operates two scoops, each independently controlled by push-button switch. It weighs 946 lbs.

Iowa Beef Breeders Plan Testing Program

AMES, IOWA — Iowa beef cattle breeders and the Iowa State University Cooperative Extension Service are setting up a state-wide production testing program, according to Robert C. de Baca, extension animal breeding specialist at Iowa State.

Testing has already started on an Angus herd near Walnut, Iowa; 15 breeders in Iowa County are to start on-the-farm production testing Oct. 1. One Angus herd at Burt, Iowa, and one at Dubuque, Iowa, have been tested independently for about three years. A few other herds in the state are on some form of production testing.

About 35 Iowa County extension directors have reported to Mr. de Baca that breeders in their counties have told them they are interested in production testing.

The program should eventually look to central beef-testing stations somewhat like the present boar-testing stations to standardize the testing throughout the state. Most of the testing, however, will probably be on the farm, Mr. de Baca said. Local beef men may form county testing associations and employ weighers and graders as swine producers are doing now in many counties. One beef breed group—the Shorthorn Assn.—has the first breed-owned central bull testing station in the nation in operation now near Ames.

Object of the testing will be to enable breeders to further improve their breeds by selecting replacement stock on the basis of rate of gains on feed, feed efficiency and carcass desirability as well as for breed conformation.

More than 3,000 beef cow herds are included in such programs in the western states and several southern states, Mr. de Baca said.

Heart Association Makes Poultry Grant

NEW BRUNSWICK, N.J. — The New Jersey Heart Assn. has awarded a $4,000 grant to four members of the poultry science department, Rutgers University, for studies concerning hardening of the arteries.

The grant was part of the $17,139 total given by the association to Rutgers scientists for research dealing with the cardio-vascular system.

The poultry research team is composed of Dr. Hans Fisher, Dr. Harold S. Weiss, Dr. Paul Griminger and Dr. Paul D. Sturkie.

Dr. Fisher's role in the project is to formulate diets and follow the chemistry of the blood and major blood vessels. Dr. Weiss is interested in the role of age, sex, exercise and blood pressure in producing physical changes in blood vessels.

Dr. Griminger is studying the factors concerned with blood clotting and the role which the blood clotting mechanism might play in circulatory failures.

Dr. Sturkie is studying cardiac output and its relationship to the hardening of the arteries.

Dr. A. J. Siedler to Head AMIF Division

CHICAGO—Dr. Arthur J. Siedler has been appointed chief of the division of biochemistry and nutrition of the American Meat Institute Foundation, Chicago, scientific research institution at the University of Chicago, announced Dr. B. S. Schweigert, AMIF director of research and education.

Selection of Dr. Siedler for the position was based on his extensive scientific accomplishments and demonstrated administrative capacities, Dr. Schweigert stated.

Dr. Siedler joined the foundation staff in 1951, shortly after receiving his B.S. degree from the University of Wisconsin. Subsequently, while carrying on a full research program at the foundation, Dr. Siedler continued his academic training at the University of Chicago and received his M.S. and Ph.D. degrees from the university in 1956 and 1959, respectively.

During his eight years of research at the foundation, Dr. Siedler developed important information on the nutritional benefits derived from the use of animal fats in feeds, on the chemistry of meat color, on the nutritional composition of meat and on the biochemical role of nucleic acids in controlling cell growth in the body.

Joins Pockman Firm

DECATUR, ALA.—The L. A. Pockman Manufacturing Co., Decatur, has appointed Robert I. (Bob) Hanson to its sales organization. Mr. Hanson's territory will include Alabama, Mississippi, Louisiana, Tennessee and Kentucky.

For the past several years Mr. Hanson has been a sales representative for the Oakes Manufacturing Co., covering northern Alabama and southern Georgia. Before his association with the Oakes firm he was a Purina dealer for about five years in Chiefland, Fla., and also was in the farm equipment business.

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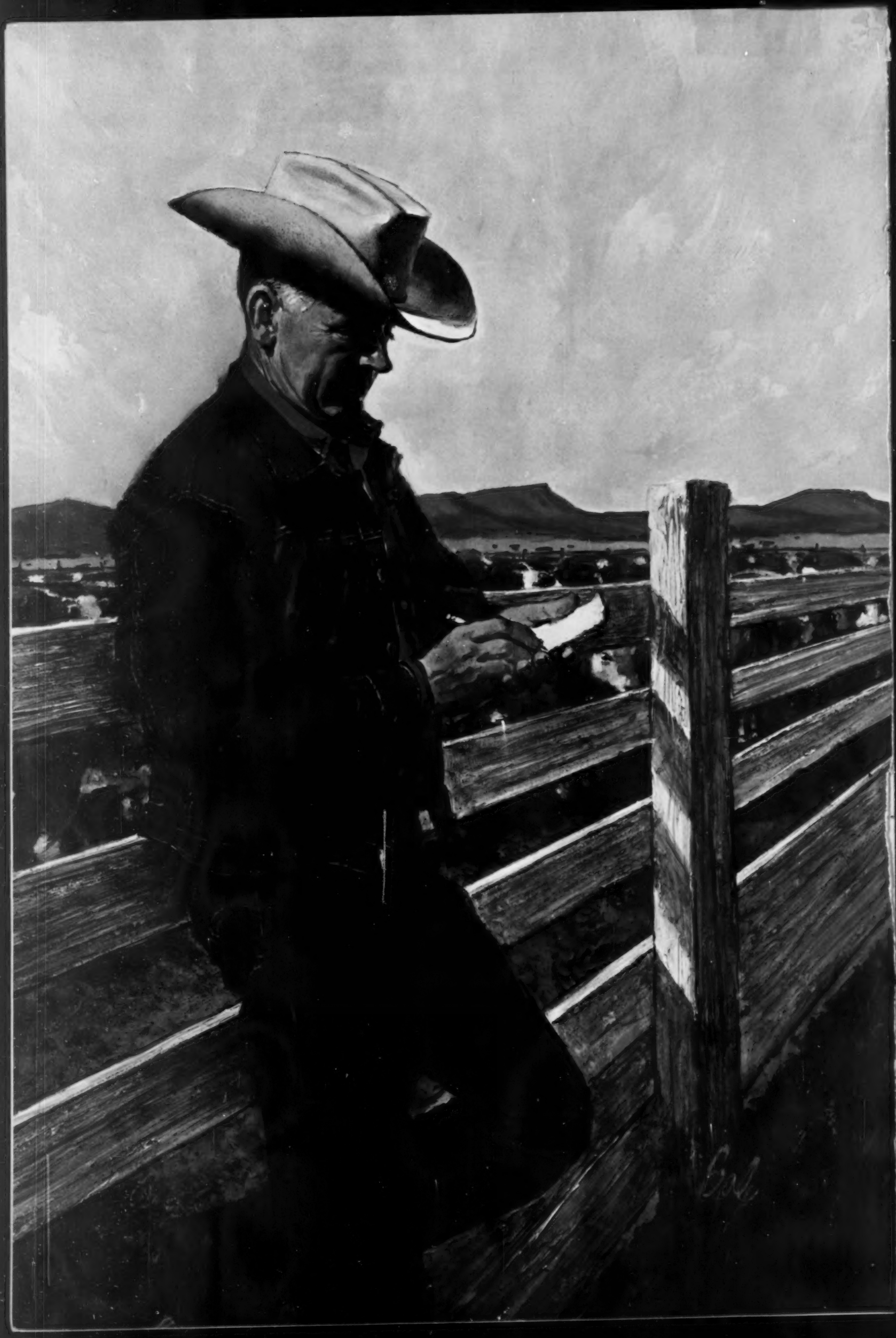

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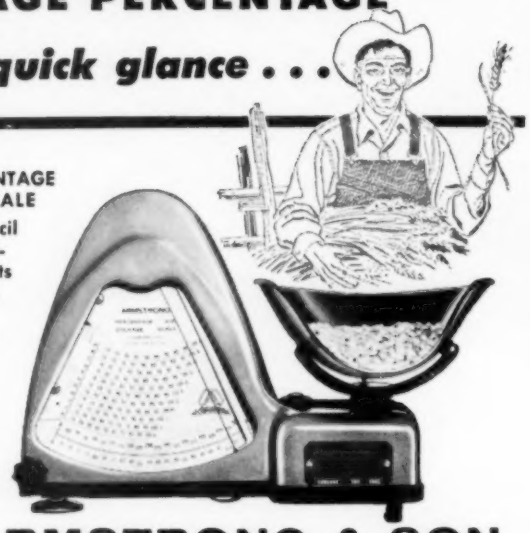

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APPOINTMENT—Gaddis Bros. Mfg. Co., Inc., Walford, Iowa, has announced the appointment of Bremer Sales Co., Hot Springs, Ark., as distributor for the Pak-Master line of self-unloading bulk feed delivery equipment in Arkansas, Louisiana, Mississippi and eastern Oklahoma. Bremer Sales Co. has sales and service points at Hot Springs, Ark.; Forest, Miss.; Oklahoma City, Okla., and plans one to be set up soon in Louisiana. Pictured (left to right) are: Fred Kraushaar, Gaddis Bros. Mfg. Co., Inc.; Eldon Shirley, Bill Ziegler, Francis Bremer and Jack Bremer of the Bremer firm.

Way to Prevent Alfalfa Bloat, Results of Over-, Under-Feeding Heifers Reported

ANKENY, IOWA—The prevention of alfalfa pasture bloat and problems encountered by over-feeding or under-feeding heifers were discussed by Dr. Norman L. Jacobson, dairy nutritionist, at the Iowa State University Cow Conference recently.

Dr. Jacobson said the most effective method of preventing alfalfa pasture bloat is green-chopping the alfalfa and feeding it in dry lot. This reduces bloat because it forces the animal to eat the entire plant, he said. She can't "fill up" on only the soft and tender parts of the plant. And if bloat threatens on the green-chop soilage in dry lot, it can be prevented by sprinkling crude soybean oil over the green-chop at the rate of one fourth pound of oil for each 1,000 lb. of body weight of the animal being fed.

One half to one third of a cup of lard oil, soybean oil or similar oil, placed in the cow's rumen by stomach pump or hypodermic needle was reported to be effective in relieving a bloated animal except in the final stage of bloat.

Antibiotics

Some antibiotics reduce bloat for a period of 7 10 days. but they lose effectiveness after that, he reported. Iowa State University researchers are working now to develop methods for extending this bloat-control effect.

Yearling cattle wouldn't bloat for 3 to 4 hours after they'd been fed one fourth pound of soybean oil in 1¼ lb. of grain.

Feeding soybeans or soybean flakes to cattle before grazing failed to reduce bloat. Trace mineral feeding didn't help either, Dr. Jacobson said. Fertilizing pastures with phosphate didn't prevent bloating of cattle on the fertilized pasture and may even have increased bloat because it promoted rapid growth of the forage. The researchers didn't find any consistent relationship between the occurrence of bloat and the nitrogen, phosphorus, calcium or dry matter content of the alfalfa tops.

Overfed Heifers

Heifers that are overfed in their growing period won't produce as much milk when they become mature cows as similar heifers fed standard rations, reported Dr. Jacobson. On the other hand, he said, extreme underfeeding of the growing heifer delays her sexual maturity.

On the basis of feeding research results gathered from throughout the U.S. and foreign countries, Dr. Jacobson said, the best procedure in feeding dairy heifers is:

- Feed the calf a limited amount of milk replacer plus a good quality concentrate mixture or starter and a liberal amount of high quality hay.
- From 4 to 10 months of age, feed the heifer a limited amount of grain (2-4 lb. daily) plus plenty of high quality forage.
- From the time she is 10 months old until she has her first calf, give her all the high quality forage she will eat. Feed her grain only if the forage is of lower quality or if she is thin.
- When she begins milking feed her generously—all the best quality forage she will eat plus grain according to her production. High-producing cows won't get fat, and they must be fed liberally if they are to produce economically, Dr. Jacobson said.

F. A. WORTH DIES

BUFFALO, N.Y.—Frank A. Worth, 81, credit manager for Spencer Kellogg & Sons for 40 years, died recently. Mr. Worth was born in Buffalo and taught courses in credit and collections at the University of Buffalo's night school in 1941.

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Organic Arsenic Compounds as Feed Additives

"It is the purpose of this report to review research experience on the use of organic arsenicals as feed additives and to assess this usage in terms of benefits and dangers."

By Dr. M. L. Scott
Cornell University

The use of arsenic and its compounds in a wide variety of applications dates back to antiquity. Hippocrates (460-377 B.C.) used realgar (arsenic sulfide) in the treatment of ulcers. Arsenic was not used internally, however, and its poisonous properties were not known until the Middle Ages when poisoning with arsenic became the standard method used, particularly by women, to dispose of their adversaries or of unwanted suitors. The early alchemists considered arsenic as the key to the Philosopher's Stone with which they might convert base metals into gold.

In the early 1900's, Ehrlich reported on his studies with hundreds of organic arsenic compounds, of which number 606 became the most important because of its effectiveness against syphilis. Antibiotics have now almost completely replaced the arsenicals in the treatment of this disease. The sodium salt of arsanilic acid (atoxyl) formerly was used in the treatment of sleeping sickness. It was quite effective, but proved to be toxic at the levels used, causing permanent blindness. Arsenic also has been used widely in other ways—as poison gases for warfare (mustard gas and Lewisite), as insecticide sprays, as dyes in the manufacture of wallpaper and in the manufacture of colored glass.

Thus, in its usage, arsenic has proved to be beneficial in many ways, but highly dangerous and poisonous when misused.

Review of Research

It is the purpose of this report to review the research experience on the use of organic arsenicals as feed additives for poultry and other farm animals and to assess this usage in terms of the benefits and the dangers involved.

Feed additives are used for the purpose of obtaining some desirable or economically beneficial result such as: (a) Stimulation of growth or production; (b) improved efficiency of feed utilization, including reduced nutrient requirements or improved nutrient utilization; (c) improved market products quality (stability, composition, color, grade, finish, etc.) or (d) disease control.

The growth stimulating effect of 3-nitro,4-hydroxyphenylarsonic acid was discovered by Morehouse and Mayfield (1) in 1946, in studies on the effects of various arylarsonic acids on experimental coccidiosis infection in chickens. Bird, Groschke and Rubin (2) in 1948 confirmed the growth-stimulating effect of arsonic acid derivatives for chicks and indicated that this effect differed somewhat from that of the antibiotics since occasionally the two effects were additive. Since then, other arsonic acid derivatives, notably paraaminophenylarsonic acid (arsanilic acid) (Abbott, Bird and Cravens, 1954) (3), and its sodium salt (sodium arsanilate) have been shown to possess growth-stimulating properties.

CHICK GROWTH — During the past decade, numerous scientific reports have been published on the use of one or more of these drugs in rations for chickens (4-18). Over three fourths of these studies presented evidence of growth stimulation from the use of 3-nitro-4-hydroxyphenylarsonic acid at levels approximating .005% of the diet of young chickens.

Among these, perhaps the most significant study was that of Milligan et al. (16). These workers conducted 13 experiments using 9,902 broiler chicks, and concluded that the addition of 3-nitro-4-hydroxyphenylarsonic acid to practical rations for broilers was economically advantageous, even when these rations contained a low-level of an antibiotic. In the studies with arsanilic acid, positive growth stimulation also was observed in the majority of the studies.

As in the case of the growth stimulation obtained with antibiotics, the responses to arsenicals are sometimes variable, depending undoubtedly upon environment and type of ration being supplemented. For example, Morrison, Hunsaker and Aitken (14) showed that both penicillin and 3-nitro-4-hydroxyphenylarsonic acid caused highly significant growth stimulation in "old" environment but not in a "new" environment, whereas arsanilic did not stimulate growth in either environment.

Libby et al. (15) showed that .01% arsanilic acid was as effective as penicillin in promoting a growth stimulation in battery-reared chicks but neither was effective in stimulating growth of floor-reared chicks. The effect of arsanilic acid and penicillin in the battery-reared chicks was not additive.

McDonald (17) was unable to obtain a growth stimulation from arsanilic acid, whereas penicillin gave a 16% increase in growth in these same studies. He suggested that these results indicated that the compounds had different modes of action.

West (15) found that 3-nitro, 4-hydroxyphenylarsonic acid produced a significant increase in growth under the conditions of his experiment when added to a diet containing either 10 gm. or 100 gm. of Terramycin per ton. The response from the arsenical was considerably less when used with 100 gm. of Terramycin per ton than when used with 10 gm. per ton.

Scott and Glista (6) found that neither antibiotics nor arsenicals improved growth of chicks receiving a practical ration fortified with all known vitamins when the feed intake was equated for each group of chickens.

Pepper, Slinger and Bergey (12) found that 3-nitro-4-hydroxyphenylarsonic acid resulted in improved growth and efficiency of feed utilization in growing pullets and showed a "trend toward development of earlier sexual maturity."

LAYING HENS—Libby et al. (15) reported that arsanilic acid at a level of .01% of the ration significantly increased egg production of White Plymouth Rock chickens. However, their data showed that the egg production was only 33.2% on the basal diet and 38.4% upon inclusion of arsanilic acid.

Morehouse (19), Price et al. (20), Carlson et al. (21, 22) and Thornton and Moreng (23) all report favorable effects of the arsonic acids upon egg production. Lillie et al. (24), in a three-year study, failed to show any influence of arsanilic acid upon egg production, fertility or hatchability. Pope and Schaible (25) showed that arsanilic acid increased egg production significantly when added to a low-protein laying ration.

ARSENIC CONTENT OF MEAT AND EGGS FROM CHICKENS RECEIVING ARSENICALS—According to Evans et al. (25), the maximum arsenic concentration in eggs from hens fed diets containing up to .02% of arsanilic acid was .532 mcg. of As_2O_3 per gm. of egg. Two weeks after discontinuing feeding of arsanilic acid the arsenic content of the eggs was negligible. When the recommended level of .01% of arsanilic acid was used the levels of arsenic in the egg ranged from 0.115 to 0.192 mcg. per gm. of egg and this amount remained constant over a five month period.

The deposition of arsenic in the tissues of chickens has been studied by Abbott, Bird and Baumann (26). When arsanilic acid was fed at levels of 500, 1,000, 1,500 mg. per kg. of diet the amount of arsenic in the liver was relatively constant at approximately 8 mcg. per gm. of liver. However, at recommended levels of usage the liver contains much lower amounts of arsenic, ranging in the neighborhood of .5 mcg. of arsenic per gm. of liver. (Milligan et al.) (16) The liver contains considerably more arsenic than the kidneys, muscle or other organs.

According to generally understood limitations, tentatively established as a working basis by the Federal Food & Drug Administration, the safe upper limit of arsenic content in tissue is 2.65 mcg. per gm. of tissue. The level of arsenic found in liver was considerably below this figure when the recommended amounts of the arsenicals were used.

TOXIC EFFECTS — Several isolated reports indicate that arsenicals have toxic effects under certain conditions. Abbott, Bird and Cravens (3) found that arsanilic acid was not toxic at 500 mg. per kg. of diet, but depressed growth slightly at 1,000 mg. per kg. At the level of 1,500 mg. per kg. symptoms appeared which were similar to those observed in thiamine deficiency. At levels of 2,000 mg. per kg. of diet and above, excessive mortality occurred. Sweet, Romoser and Combs (10) observed that arsanilic acid as well as sulfaquinoxaline and oxytetracycline alone or in combination caused delayed blood clotting time in chicks, which was restored by addition to the diet of alfalfa or menadione.

In their 13 experiments with 9,902 New Hampshire and White Rock chickens, Milligan and associates (16) reported improvement in growth and market grades, very slight if any improvement in feed efficiency and pigmentation, no effects on incidence of serious leg weakness, mortality or feathering and an occasional unsteadiness in walking on the part of a few individuals when a level of .005% 3-nitro, 4-hydroxyphenylarsonic acid was used in the diet. In four experiments, the arsonic acid was used in combination with bacitracin. In the other nine experiments it was used in combination with penicillin.

Sadek, Hansen and Albert (27) reported an anemic condition, resembling hypoplastic anemia in man, in four flocks of chicks that had been given one or more of the following drugs: Terramycin, Aureomycin, sulfaquinoxaline, 3-nitro, 4-hydroxyphenylarsonic acid, and 4-nitro phenylarsonic acid.

Nelson and Norris (30) have observed a similar hypoplastic bone marrow in vitamin K-deficient chicks.

Moore, Chamberlain and Carter (28) reported on an experience in

Dr. M. L. Scott

AUTHOR—This thorough review of many papers on organic arsenicals was prepared by Dr. M. L. Scott, professor of animal nutrition and poultry husbandry, Cornell University, Ithaca, N.Y.

CANDLING CENTER—Visitors at a recent open house in Coatesville, Pa., saw this main candling center of the Producers Cooperative Exchange, Inc., new plant where more than 25,000 eggs are handled each hour. The plant features electronic and mechanical equipment which automatically weighs, counts and packages more than 400,000 eggs a day. Some of the eggs are cartoned under the co-op's own label, and some under the labels of the co-op's customers.

which .1% of arsanilic acid was inadvertently fed to turkey breeders for a period of three weeks. This high level caused a significant reduction in egg production and hatchability but no apparent effect on fertility. Two weeks after the level had been restored to .01% of arsanilic acid, egg production and hatchability returned to normal values. The arsanilic acid at this level had no detrimental nor beneficial effects upon egg production, hatchability or fertility.

TURKEYS—McGinnis and associates (31) compared 3-nitro-4-hydroxyphenylarsonic acid at a level of 50 mg. per kg. of diet with penicillin, streptomycin, Aureomycin and Terramycin. The arsenical promoted a growth response equal to that obtained with the highest levels of streptomycin or Terramycin which were fed at 25 mg. per kg. of diet.

Pepper and Slinger (32) compared the growth stimulating effects of 3-nitro,4-hydroxyphenylarsonic acid and arsanilic acid, the former at .005%, the latter at .01%, with that of Aureomycin at 50 gm. per ton of ration. These antibacterials were added to a basal diet containing 4 gm. of penicillin per ton. All treatments increased growth and feed efficiency to eight weeks of age. Three-nitro-4-hydroxyphenylarsonic acid and Aureomycin maintained the advantage to 24 weeks but arsanilic acid did not.

DUCKS—Frost (33) refers to unpublished data by Karrasch and Barrows of Hales & Hunter Co. in which it was demonstrated that single oral doses of arsanilic acid up to .3 gm. were tolerated by chicks weighing about 1 kg. Three-week-old ducks of this same average weight tolerated single doses of one gm. of arsanilic acid but succumbed to single doses of .1 gm. of 3-nitro-4-hydroxyphenylarsonic acid. At .01%, arsanilic acid was reported to have a slight inhibitory effect on growth and feed efficiency of ducks to four weeks of age. Thus the use of arsanilic acid in rations for ducks appears undesirable even though it does not present a hazard from the toxicity standpoint. The results with arsanilic acid are in contrast to the commonly held idea that organic arsenicals are peculiarly toxic to waterfowl.

GOSLINGS — Lindblad, Hunsaker and Aitken (34) found that 3-nitro, 4-hydroxyphenylarsonic acid had no beneficial effects on growth of male goslings and reduced the weights of the female goslings.

PHEASANTS — Scott, Holm and Reynolds (35), in studies with Aureomycin and 3-nitro,4-hydroxyphenylarsonic acid, showed that either compound fed alone produced a marked increase in the early growth of pheasant chicks but that the growth stimulation obtained from the combination of these two drugs was only slightly greater than that obtained with Aureomycin alone.

ARSENICALS FOR SWINE — A large volume of reports has appeared on the use of arsenicals with swine. In 1951, Carpenter (36) conducted an excellent study with 3-nitro,4-hydroxyphenylarsonic acid at levels of .005%, .01% and .02% in the diet of weaned pigs. All levels stimulated growth in the pigs. However, the .01% and .02% levels produced toxicity symptoms after 2-4 weeks on these diets.

The liver and kidneys of pigs fed .005% contained 1.69 and 1.32 mcg. As_2O_3 per gm. of fresh tissue, respectively. Seven days after removal from the diet the As_2O_3 was reduced to .29 and .46 mcg. per gm. of tissue, respectively.

Carpenter (37) also reported that 3-nitro-4-hydroxyphenylarsonic acid and 4-nitro benzene arsonic acid not only markedly improved growth and efficiency of feed utilization to 8 weeks, but also caused pigs to be resistant to bloody dysentery and improved growth in pigs purposely infected with bloody dysentery.

Hanson and Ferrin (38) compared growth stimulating effects of penicillin, Aureomycin, bacitracin, Terramycin and arsanilic acid in feed mixtures for suckling pigs. All of these compounds, except bacitracin, increased the weight gain significantly.

(Turn to page 40)

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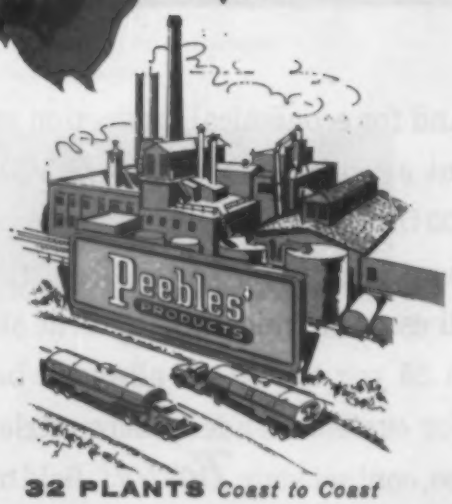

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Arsanilic acid was used at a level of .0066%.

Schendel and Johnson (39) showed that arsanilic acid significantly increased piglet growth and feed consumption to five weeks of age.

Only a very few reports have indicated negative results. Among these were studies by Bridges et al. (40) and Wallace et al. (41). In the former study, bacitracin, penicillin and arsanilic acid, singly or in combination, failed to increase growth of swine fed a milo-soy ration. In the latter experiment, chloromycetin, bacitracin and 3-nitro-4-hydroxyphenylarsonic acid failed to produce significant effects upon growth when added to a control ration made up largely of corn and peanut meal. In this experiment, Aureomycin and Terramycin accelerated growth and also controlled an intermittent diarrhea which occurred on the basal ration.

ARSENICALS FOR DAIRY CALVES—Graf and Holdaway (42) observed that calves fed arsanilic acid scoured less and made more rapid gains during the first four weeks of life than did calves not receiving this supplement. The optimum level of usage appeared to lie between .0065 and .013% of the total dry matter of the ration, while .026% was considered to be slightly excessive. A number of other papers have also shown beneficial effects of the arsonic acids upon young calves, when used at approximately .005% of the diet (43, 44).

Owen and associates (43) studied the comparative effects of various antibiotics and an arsenical upon growth, health and certain blood constituents in dairy calves over a 12-week growth period. Ranking the controls at 100%, Terramycin and Aureomycin produced growth of 155 and 151%, respectively, whereas 3-nitro-4-hydroxyphenylarsonic acid produced a growth response of 128%. The efficiency of feed utilization was correspondingly improved as growth increased.

ARSENICALS FOR LAMBS — Bucy and associates (45) fed levels of .05, .1, .2 and .4% of 3-nitro-4-hydroxyphenylarsonic acid and levels of arsanilic acid and potassium arsenite of equivalent arsenic content. Amounts of 3-nitro-4-hydroxyphenylarsonic acid above the .05% level produced a cloudy swelling in the liver cells, and other pathological conditions. All levels of arsanilic acid fed in this experiment produced pathological conditions in the livers of the lambs. Kidney damage was observed also, and in a lamb fed .2% arsanilic acid convulsive seizures occurred. Potassium arsenite was also toxic at the levels fed.

These workers concluded from these "high level" feeding studies that "these arsenicals may cause severe pathological damage without outward toxicity symptoms."

It should be noted that the levels fed in this toxicity study were from 5 to 40 times the usual feeding levels, and in earlier work by these same workers levels from .002% to .024% of total ration produced no changes either in rate of gain, rumen flora, prothrombin time or wool growth. Also, histological examinations of the kidneys, livers and adrenals showed no effects of these arsenic compounds at these low levels of feeding.

MODE OF ACTION—Several attempts have been made to determine the mode of action of arsenicals in promoting growth.

Anderson, Cunningham and Slinger (29) found that the growth promoting effects of 4-hydroxy- and 3-nitro, 4-hydroxyphenylarsonic acid in turkey poults were correlated with an increase in intestinal Lactobacilli.

Carpenter and Larson (37) reported that growth of pigs was not related to arsenic levels in the blood nor were the blood arsenic levels related to the effectiveness of 3-nitro-4-hydroxyphenylarsonic acid in the prevention of swine dysentery. Later, Larson and Carpenter (46) showed that the fecal Clostridium perfringens count was greatly reduced by the addition of 3-nitro-4-hydroxyphenylarsonic acid, procaine penicillin or Aureomycin and that growth rate was increased at the same time.

Fevrier and associates (47) reported that antibiotics, copper sulfate and 3-nitro-4-hydroxyphenylarsonic acid, all caused growth stimulation in swine (8-13%) and all inhibited in vitro deaminases of the intestinal microorganisms. They found the ammonia content of the portal vein was less in the presence of the antibacterials. They also showed that the degradation of choline was inhibited.

Ueda and associates (48) have studied the effects of numerous arsenical chemotherapeutic drugs on a series of bacteria and enzyme systems. They showed that all of the arsenical compounds with bacteriocidal properties inhibited the succinic-dehydrogenase of Micrococcus pyogenes, var. aureus, E. coli, Shigella dysenteriae and Salmonella typhosa. In studies on 20 areoarsonic acid derivatives, these workers found that 3-nitro-4-hydroxyphenylarsonic acid was more active against these four organisms than was sulfathiazole which was used as a control.

Suzuoki and Suzuoki (49) reported that atoxyl (sodium arsanilate) at only .001 molar at 60° C. completely inhibited both thioesterase and ordinary esterase activity in a number of tissues in the body. Freedman and Doak (50) reported that all arsonic acid derivatives studied showed some activity against choline esterase.

ARSENICALS AND SELENIUM POISONING—Hendrick and associates (51) reported that both 3-nitro-

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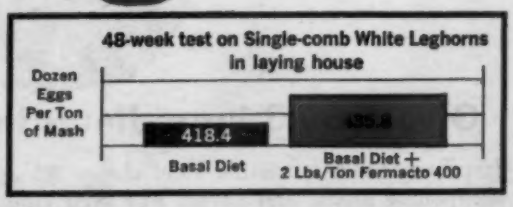
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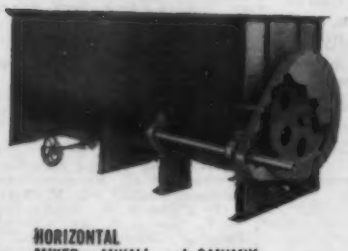

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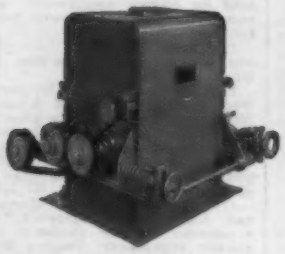

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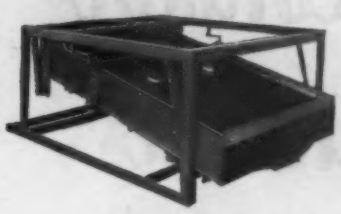

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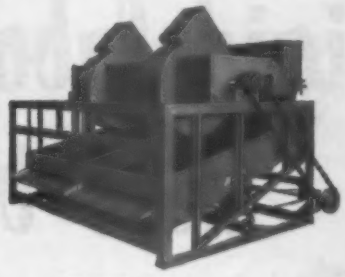

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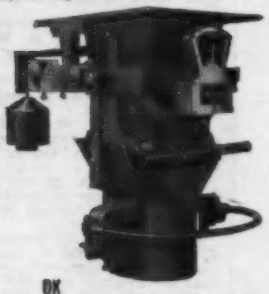

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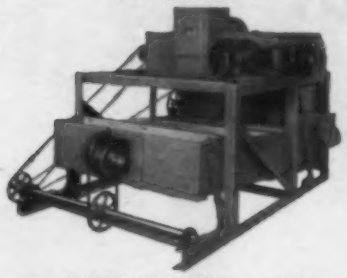

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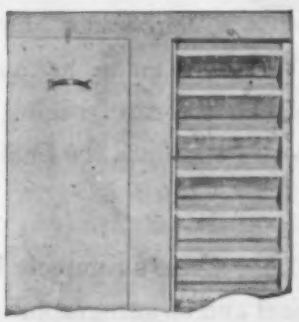

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4-hydroxyphenylarsonic acid and arsanilic acid gave partial protection against selenium poisoning in rats. The protection increased as the level of these compounds increased in the diet, but complete protection was not obtained with either compound.

Carlson et al. (52) showed, in various breeds of chicks, that arsanilic acid, at levels of .01% and .04%, produced varying degrees of protection from the toxicity of sodium selenite when fed at a level of 10 parts of selenium per million parts of diet. Complete protection was obtained in only two of the nine breeds used in the experiment.

Minyard, Dinkel and Olson (54) reported that .005% and .01% arsanilic acid failed to protect young calves receiving prairie-hay, free-choice, containing 5.4-7.1 ppm. of naturally-occurring selenium, but in two subsequent experiments, definite evidence of a protective action was observed, especially with .01% arsanilic acid.

Wahlstrom and associates (53) reported that excellent protection against 10 ppm. of selenium in the diet of pigs was provided by either .02% arsanilic acid or .005% 3-nitro-4-hydroxyphenylarsonic acid, with no toxic effect from the arsenicals at the levels fed.

v v

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Plan Livestock Arena

EDWARDS, MISS.—Plans for construction of a $40,000 livestock arena here were approved recently at a board of directors meeting in Jackson, Miss.

L. F. Angelo, president, of Edwards, said the new arena will have 1,000 permanent seats and stressed that the show arena is part of a 5-year expansion program at the Hinds County livestock association grounds. The second step in the construction plans calls for roofing the arena.

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This is the message your hog producers will be reading this fall in Cyanamid advertising in national, sectional and state farm papers.

Keeping accurate records for all stages of hog production has long been recommended and urged by feed manufacturers, extension specialists, bank farm advisers and leaders in the hog industry. This is the first time, we believe, that a complete record-keeping system has been offered *free* on a national scale. The CPA RECORD will be available only through feed manufacturers and feed dealers.

You can render a genuine service to your customers by offering CPA. Hog producers, by evaluating their records and acting upon what they show, can produce more hogs with the same labor and capital. They can wean more pigs per litter . . . produce more pork on less feed. They can plan production so that they sell on a higher market.

What CPA is

CPA RECORD is a 9" by 14" folder that can be used as a desk portfolio or opened out and used as a wall chart. It has handy pockets for keeping feed, veterinary and miscellaneous bills and sales receipts.

Most important in CPA are the record sheets themselves which are attached, at the proper time, to the master folder. There are two complete sets of these sheets to cover the records for all stages of production.

Record "A" is for posting feed during gestation and lactation. Space is provided for recording both purchased and home-produced feed.

Record "B" covers sow production at farrowing and weaning. Space is provided for a complete record on each individual sow.

Record "C" is a gestation-lactation summary. Here is where cost per weaned pig is figured.

Record "D" is for posting both purchased and home-produced feed during the growing-finishing stage. Space is provided for notes on death losses — and for dates and numbers of pigs started and finished.

Record "E" is for determining net return. To figure net return, farmers must know all costs in addition to feed. These costs are for pasture, veterinary services and supplies, labor, building and

CPA RECORD, with two record sheets attached, is shown as it appears when opened out.

BALANCED FORMULA FEEDS

with the proper levels of

- **PROTEIN**
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Get better sow performance by feeding AUREOMYCIN during the gestation, farrowing and lactation periods.

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Keep growing-finishing hogs on feed containing AUREOMYCIN all the way. Send more hogs to market.

equipment use, interest, taxes and overhead. Estimates of these costs, based on a study made by a leading midwest university, are supplied. These can be used as a basis of comparison or for estimating net return.

CPA is designed to be equally usable by the producer of feeder pigs, the purchaser of feeder pigs, or the man with a complete operation. Ideally, a set of records should be kept for each group of sows due to farrow at a given time and should be started when the sows are bred. CPA is flexible enough, however, to allow the producer who is farrowing continuously to keep annual records.

How AUREOMYCIN® pays

Many hog farmers who have kept records over a period of years know that AUREOMYCIN pays off when fed at every stage of hog production.

Recent controlled experiments conducted on 7 farms in Iowa involving 176 sows and their litters totalling 1523 pigs, revealed remarkable results when AUREOMYCIN was fed to sows and pigs from breeding to market.

There was an extra return of $3.65 for each $1 invested in AUREOMYCIN.

In these controlled experiments one group of sows and their litters were fed AUREOMYCIN. Another group of sows and their litters received no AUREOMYCIN. Results showed 9 more pigs weaned per 12 sows from the group fed AUREOMYCIN. That's a *big extra litter* and a significant profit picture for any hog farmer.

After weaning, the pigs were continued on the experiments through the growing-finishing stage — one group on AUREOMYCIN, another group without AUREOMYCIN. 10 more pigs were marketed per 12 litters from the group fed AUREOMYCIN. At market, that represented an extra return of $356.48 from one farrowing of 12 sows.

Combine this program with CPA RECORD keeping

When your hog producers follow the multi-stage swine raising program with your good formula feeds containing AUREOMYCIN, the CPA RECORD will show that hogs put on gains at the lowest possible cost.

We're urging hog producers to see their feed manufacturer or feed dealer for the CPA RECORD and for good formula feeds containing AUREOMYCIN for the multi-stage program — gestation, farrowing, lactation, starting, growing and finishing.

On the back page you will find full details on how to get your supply of CPA RECORDS.

*AUREOMYCIN is American Cyanamid Company's trademark for chlortetracycline.

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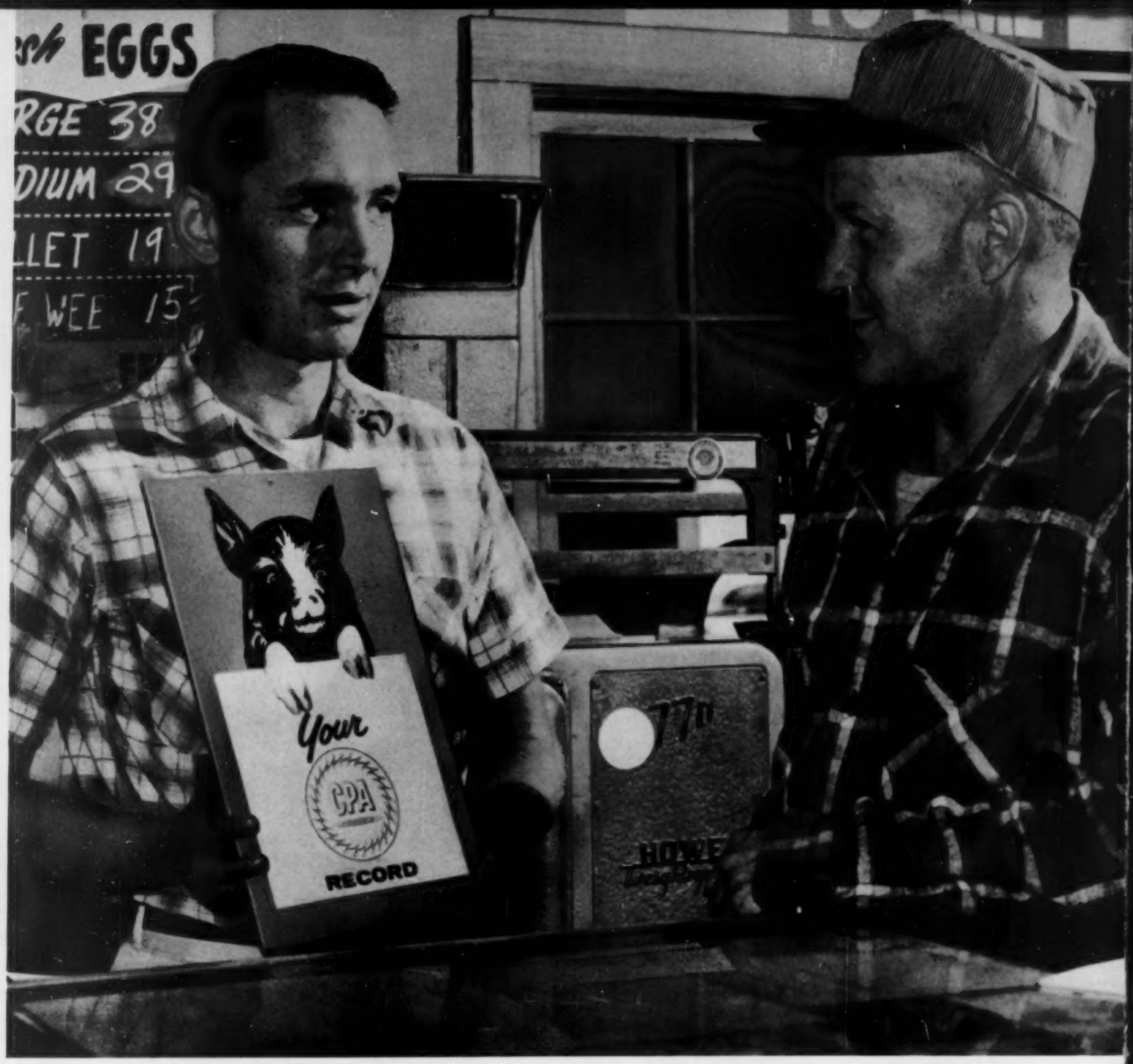
SWINE

CPA RECORD ■ SOW PRODUCTION

Sow No.	FARROWING Date	No. Born Alive	No. Born Dead	Birth Weight	WEANING Date	No. Weaned	Litter Weight	Date Vaccinated	NOTES



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Your customers are being told—in national advertising in the farm magazines shown below—to get their CPA RECORD from their feed manufacturer or feed dealer. A coupon has been included for their convenience in writing to you. Feed manufacturers and feed dealers are urged to contact a Cyanamid field representative—or to write direct to Cyanamid—for full details on CPA and how it can be used to advantage.

American Cyanamid Company, Agricultural Division, New York 20, New York.

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AUREOMYCIN
IN FORMULA FEEDS

Dr. John H. Hare Joins Pfizer Canada

MONTREAL—The appointment of Dr. John H. (Jack) Hare as manager of the agricultural division, Pfizer Canada, was announced recently by Philip C. Lindsey, assistant general manager.

Dr. J. H. Hare

Dr. Hare received his bachelor of science degree in agriculture from Ontario Agricultural College and his master of science and doctor of philosophy degrees in agricultural chemistry from Macdonald College.

Dr. Hare joined Chas. Pfizer & Co., Inc., in 1955, as a poultry nutritionist at the company's 700 acre agricultural research and development center near Terre Haute, Ind. Prior to coming to Pfizer Canada, he headed the development department which coordinates cooperative experimental work with universities, feed manufacturers and commercial producers in the U.S.

General Mills Acquires Cat Food Company

MINNEAPOLIS—General Mills, Inc., Minneapolis, has acquired the business of the American Crabmeat Co., Inc., Boston, it was announced by A. Z. Kouri, executive vice president of consumer foods for General Mills. The Boston firm manufactures a canned cat food product.

Mr. Kouri described the move as a "planned step forward in our expanding pet food activities."

General Mills has been in the pet food business since 1930, originally with a dog food produced by the firm's feed division and sold through feed stores. In 1956 Surechamp, a new dog food, was introduced and marketed in the western U.S. Early this year, the marketing of Surechamp was extended to grocery stores throughout the country. General Mills has marketed Spratt's dog and cat foods nationally since it acquired the plant, production facilities, formulas and U.S. rights to the brands and trademarks of Spratt's Patent (America) Ltd. in December, 1958.

General Mills pet food operations are handled by the grocery products division of the company.

Salvatore and James Fazio, founders of the Boston firm, will continue with the organization and be identified with the operations of the Boston plant.

Chemical Companies Complete Merger

NORFOLK, VA.—Smith-Douglass Co., Inc., recently announced that its merger with Smith Agricultural Chemical Co. was consummated and became effective Sept. 15. As the surviving corporation, Smith-Douglass acquires additional operating plants at Columbus and Carey, Ohio; Saginaw and Holland, Mich.; and Indianapolis, Ind.

W. F. Farley, formerly president of Smith Agricultural Chemical Co., has become assistant to J. H. Culpepper, vice president, fertilizer division, Smith-Douglass Co.

Smith-Douglass maintains home offices in Norfolk, Va., while Smith Agricultural Chemical Co. has been headquartered in Columbus, Ohio.

Smith-Douglass operates fertilizer manufacturing plants in Albert Lea, Minn.; Streator, Ill.; Wilmington and Kinston, N.C.; Danville and Norfolk, Va., and Texas City, Texas. It mines phosphate rock at Plant City, Fla., and produces phosphorus feed supplements at both Plant City and Texas City. Natural organic nitrogen is produced in Granite City, Ill., and a second Norfolk, Va., plant. At Houston, Texas, the company has an anhydrous ammonia facility. Phosphoric and sulfuric acid and potassium silicofluoride are produced at Streator, Ill., Norfolk, Va., and Texas City, Texas.

IDAHO BUTTERFAT

MOSCOW, IDAHO—Butterfat production per cow in Idaho increased 10 lb. over production the previous year, according to the 1958 report of the Dairy Herd Improvement Assn. D. L. Fourt, head of the Idaho University department of dairy husbandry, said the report showed milk production went up 377 lb. per cow for the same year.

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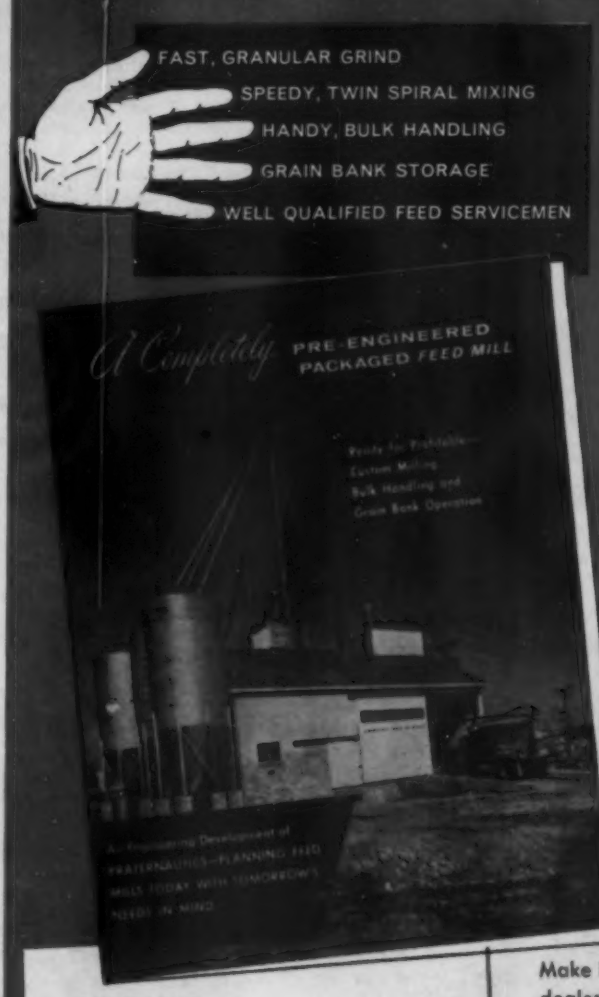

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EGG RANCH—The Brewer Egg Ranch spreads out over a large area on the banks of Moon Lake. Directly in the center of this picture is the feed mill which Mr. Brewer constructed. It has been expanded since this picture was taken.

Mississippi 'Egg Ranch' Combines Production, Marketing of Product

By Special Correspondent

The recent U.S. Department of Agriculture study of integration in egg production and marketing included a section dealing with owner-integrated operations (Feedstuffs, July 25).

Feed men may be interested in an example of this type of operation which is found in northern Coahoma County, near Clarksdale, Miss. Mississippi extension specialists consider it a good example of integration where the owner produces and markets his own product on a large scale. The operation is the Brewer Egg Ranch, on the banks of Moon Lake.

Chester Brewer and eight associated farmers are producing eggs in large quantity and sending them to Memphis where their own firm markets them. The entire program is highly efficient and profitable, and was set up quite economically.

Mr. Brewer, inexperienced in poultry but with a number of friends in the industry, began researching the subject as a possible supplemental income to his general farming operations. After several months of study and survey of the potential egg market of this area, he decided upon a plan of action that has proven so successful it can no longer be termed "supplemental."

Realizing that a market outlet was essential to the profitable operation of the enterprise, he contacted a number of egg producers who he thought would be interested in forming a marketing and wholesale egg business.

The group liked the idea, quickly secured a location in Memphis, Tenn., and set up Moon Lake Egg Farms, Inc., to process and distribute the eggs. The processing and distributing operations have now been moved to the Moon Lake location, however, and only marketing is now done from the Memphis location.

Market Group Members

The marketing group now consists of eight permanent members in addition to Chester Brewer. They are: Otho Shurden, Pascal Townsend and Mac Blackwood of Drew, Miss.; Reau Graves of Medina, Tenn.; Fred Stone of Sledge, Miss.; John Boyd of Maud, Miss.; Guy Mohead of Clarksdale, and the Warfield Brothers of Gunnison, Miss.

Reau Graves, who works closely with Chester Brewer as manager of the operation, had a laying flock of his own in Tennessee, and has had several years of experience in the poultry business.

Mr. Brewer bought his first chicks in April, 1957, and began a construction program to eventually house 30,000 laying hens. He built rafters from a jig, bought materials and lumber in volume, and with liberal portions of elbow grease and ingenuity, constructed what Mississippi extension poultry specialists have termed "the best housing facilities at as little cost as we have seen anywhere."

A break press was purchased, from which all feeders and waterers were constructed right on the job, saving hundreds of dollars on these items alone.

In addition, Mr. Brewer designed a new 8-ft. metal feeder, copies of which have been made and sold to some of his associate producers. The feeder, which is 8 ft. in length, is made in a "V" shape with a 2-in. lip. The "V" is 5⅝ in. deep, and the diagonal width is 8 in.

Makes Own Feeds

Another economy measure in connection with Brewer's egg business is the feed mill which he built near the site of his laying houses. He grinds and mixes his own feed. With his own feed mill he is able to control his poultry ration and to administer medication to the birds.

Mr. Brewer at one time used a super concentrate purchased from Master Mix, to which he added soybean meal and grain. At the present time, however, he is using a complete Master Mix concentrate which has the protein supplement included, and

FEEDERS-WATERERS—The laying house on the Brewer Egg Ranch contains the watering troughs and feeders which the owners manufacture. There are 26,000 lineal feet of feeders. The ranch now has 45 houses.

MIXING FEED—Shown mixing feed in a "home-constructed" feed mill on the Brewer Egg Ranch is Reau Graves, manager of the ranch. The production of the feed mill is approximately 20 tons daily.

PULLET RANGE—Shown is the pullet range at the Brewer Egg Ranch, which is located on Moon Lake in Coahoma County, Miss. The operation now has 110,000 producing hens.

EGG GRADING — Chester Brewer, creator and originator of the Brewer Egg Ranch, is shown supervising the egg grading operation.

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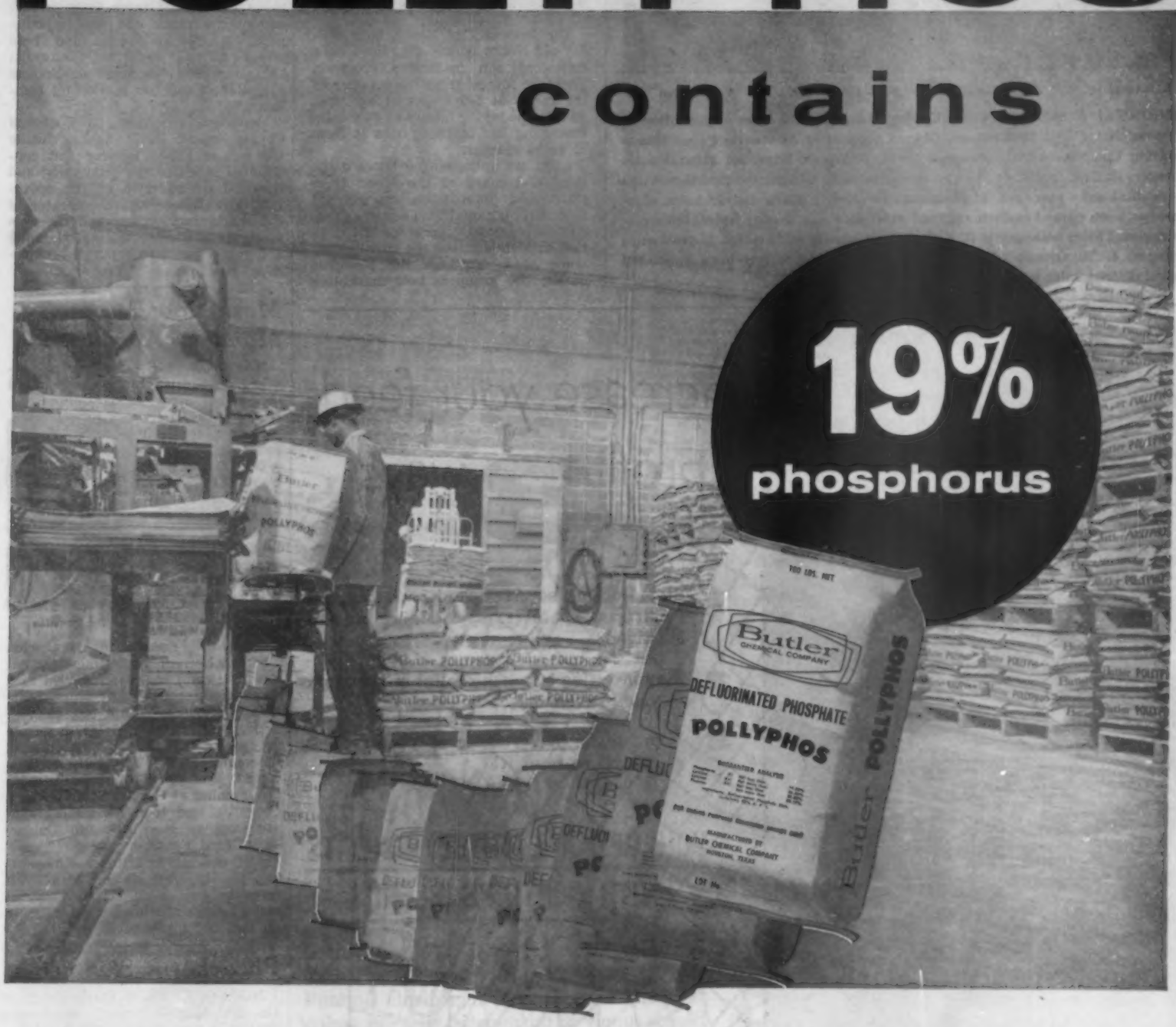

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J. M. Greene R. J. Stevens R. G. Roberts, Jr. T. H. Bacon

PERSONNEL CHANGES—The following changes in the sales organization of Raymond Bag Corp., Middletown, Ohio, a division of Albemarle Paper Manufacturing Co., have been announced by D. F. Wicks, Raymond general sales manager. R. G. Roberts, Jr., has been appointed to the newly created position of assistant sales manager. T. H. Bacon, formerly eastern district sales manager, has been named eastern regional sales manager. Newly appointed western regional sales manager is R. J. Stevens, formerly midwestern district sales manager. J. M. Greene of Raymond's Louisville office has been appointed central district sales manager.

to which only grain is added. The feed has a high calorie corn base and is, Mr. Brewer said, a more or less standard ration.

Production Volume

The entire operation of Brewer and his associates now has 110,000 laying hens producing with Brewer's flock totaling 25,000. Present production now being marketed is averaging about 200 cases daily.

The Brewer Egg Ranch buys one-day-old chicks which are raised on a restricted and medicated program. They are moved from the brooder to the range at 5-6 weeks of age, and go into the laying houses at 24 weeks. Producing life of these hens is from 12 to 14 months.

Eggs are gathered 3-5 times daily, sized and cased at the Moon Lake plant, and immediately refrigerated to retain high quality. They are graded and cartoned daily for distribution in Memphis and the surrounding trade area. Through the Memphis outlet, the group is now marketing eggs to chain stores, restaurants and hotels.

When they reach the retail market, these eggs are not more than 3-4 days old, and are of extremely high quality.

Mr. Brewer is reticent about assuming credit for his part in the program, and points to the assistance of a number of people, particularly his manager, Reau Graves, and several commercial chick and feed consultants "whose knowledge and help were, and are, important factors in the successful operation of Brewer Egg Ranch and our marketing company."

However, according to Coahoma County agent, R. P. Lewis, "while the others joined Brewer and contributed much to the production and financial organization of the operation, Mr. Brewer was the creator of the marketing system and deserves much credit for the original planning and projection which put the enterprise into successful operation."

Marketing Research Manager Appointed

MADISON, WIS.—American Scientific Laboratories, Inc. has announced the appointment of Dr. Rollin O. Dunsdon as marketing research manager.

Dr. Dunsdon

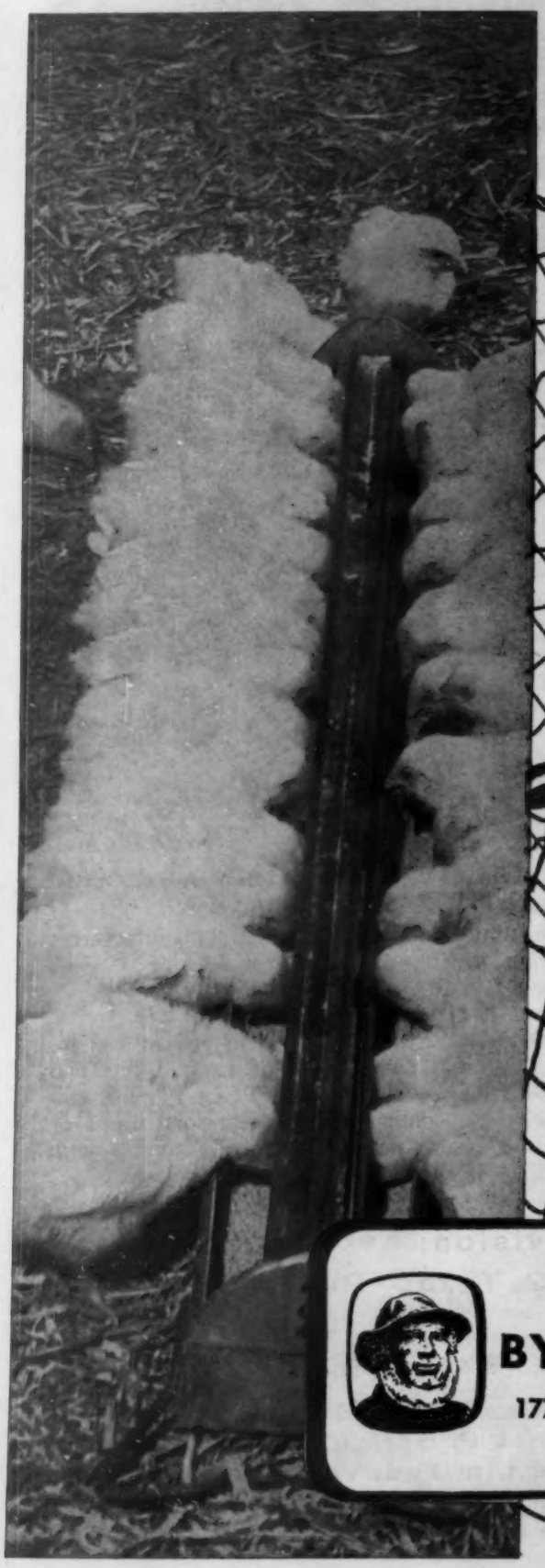
Dr. Dunsdon came to ASL from Purdue University, Lafayette, Ind., where he taught and conducted market research in the agricultural economics department. Previously he was assistant to the manager of the Oregon Turkey Growers Marketing Assn. at Roseburg, and he was employed as a researcher for the Agricultural Marketing Service, Washington, D.C.

Dr. Dunsdon earned his doctorate degree in the field of agricultural economics at the University of Wisconsin, Madison. He also had graduate training at Oregon State College, Corvallis, and took his undergraduate work at North Dakota University, Grand Forks.

ASL officials said the new marketing position reflects the firm's efforts in expanding its agricultural biologic and pharmaceutical sales in all national markets.

Phosphorus Shipments

NORFOLK, VA. — Smith-Douglass Co., Inc., Norfolk, recently announced that it is now able to offer a quality phosphorus supplement in lesser quantities by rail because the minimum carload requirement on Coronet dicalcium phosphate shipped by rail from Texas City, Texas, was reduced recently. Henry Highton, manager, feed phosphorus sales, said Coronet Granular Dikal can now be moved by rail from Texas City in both 20 and 30-ton minimum carload quantities.



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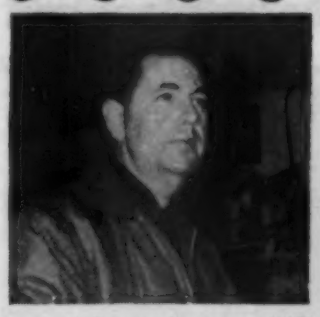
E. E. Keller

E. E. Keller Feed and Grain, Kunkle, Ohio



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I have been a Wirthmore dealer for over three years and am well pleased with the results it has given me and my customers. To my knowledge I have never lost a dairy feed customer.

Harold W Armstrong

Armstrong Hardware, Churchville, Virginia

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For thirty-seven years the Wirthmore emblem has been our only sign for farm feeds. For the same number of years we have served the same farm families. We are now enjoying our second generation of business relations, not only with the same customers but also with the Wirthmore organization. This evidence of loyalty could only come about through the efforts of Wirthmore service, quality and results.

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E. M. Brown, Barton, Vermont

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As a Kasco Farm Feeds dealer for many years, I was naturally worried about changing my customers to another feed, as I had to do at the time of the Wirthmore-Kasco merger when the Kasco line was discontinued.

It turned out that my worries were unfounded. Because of Wirthmore Quality and Wirthmore Service, we didn't lose a single customer.

Since then, we have been pleased with the competitive advantage we have gained from the on-the-farm results of Wirthmore Quality.

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LOOKING AHEAD—Among the speakers at the Iowa College-Feed Industry Conference, held at Ames Sept. 18, were (left to right): Francis Kutish, agricultural economist from the host university; Dr. C. K. Whitehair, veterinary medicine department, Michigan State University, and Dr. C. H. Hill, department of poultry husbandry, North Carolina State College. Dr. Kutish discussed the economic outlook for beef animals and swine, and the other speakers described the relationships between disease and nutrition.

Renderers Expand Foreign Markets For Animal Fats

CHICAGO—One of the primary tools being used to develop and improve foreign markets for animal fats, tallow and other animal by-products is a new educational film, "The Raw Material of Magic," produced by the National Renderers Assn. in cooperation with the Foreign Agricultural Service division of the U.S. Department of Agriculture.

Filmed in Italy and the U.S. with funds jointly provided by NRA and USDA, the movie has a two-fold purpose: (1) To increase tallow sales to tallow-deficient countries and (2) to instruct those foreign markets on better processing and handling methods developed in the U.S.

"The Raw Material of Magic" has been produced in Spanish, Italian, French, German, Japanese and English versions and will be shown throughout the world by NRA representatives.

Much of the footage was filmed on location at Italian industries, including poultry production plants. American filming depicts recommended methods of processing, testing and shipping fats and tallow.

The 28-minute film is available in 16 mm. full color and sound for showing throughout the U.S. Prints may be secured from the National Renderers Assn., 30 N. LaSalle St., Chicago.

NRA officials pointed out that the need for extending foreign markets is indicated by the continually increasing supply of animal fats, tallow and other by-products brought about by ever-growing livestock production and slaughtering.

The renderer has a serious problem, NRA noted, because animal fat supplies reach new record highs each year. NRA explained that during the past 10 years, the renderer has received an average price of 9.3¢ lb. for tallow, while currently he gets only 5.8¢ lb., and increasing supplies are expected to reduce the price still further.

Development of the film, "The Raw Material of Magic," is part of NRA's program designed to do something about the renderers' position.

Through NRA, an "Operation Bootstrap" project was introduced several years ago to institute and finance a research program designed to develop new uses and markets for renderers' products. An example of newly developed markets is the animal feed industry, which now uses large quantities of animal fats and other animal by-products in formulas for poultry, hogs and cattle.

Feather meal and other poultry by-products were found to be important feed additives.

Some measure of success in developing foreign markets can be seen in export figures of recent years. From 1935 to 1939, the U.S. exported only 2% of all domestic tallow production. By 1950, industry efforts had raised this figure to 23%. Under the new program, exports were 44% in 1956 and are averaging better than 50% this year.

FOR EXPORT—Foreign markets, as typified by this Italian poultry raiser, are now receiving the benefits of American renderers' research in the field of feed additives.

G.L.F. to Build Bulk Feed Station at Buffalo

BUFFALO, N.Y.—The Cooperative G.L.F. Exchange, Inc., will erect a new bulk feed loading station, costing about $150,000, at its Buffalo feed mill. The steel structure will have 32 bins, each of 10 tons capacity. The building will be about 25 by 90 ft., and from 40 to 60 ft. high.

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The need: Except for newly-harvested crops, grains are notably deficient in vitamin A. Yellow corn, especially, loses much of its carotene in storage. Result: where animals feed on these grains, there is the likelihood that vitamin A deficiency can become a problem. In beef cattle, for example, vitamin A-deficient rations may result in night blindness, diarrhea and the birth of weak, blind or dead calves. In dairy cattle, poultry and swine, A-avitaminoses may produce equally serious and economic setbacks.

The product: To assure a properly balanced ration you *must* include vitamin A in your formulations. Yet what you want in a vitamin A supplement is high stability, 100% biological activity, *and* economy. Such a supplement is STABIMIX A.

The advantages: STABIMIX A is one of the finest, most dependable sources of vitamin A yet made available to the feed industry. A free-flowing, hard beadlet prepared from stabilized, synthetic vitamin A in a gelatin-type base, STABIMIX A is two to eight times as stable as fish oils under any condition you can name—heat, humidity, cold, pelleting, water dispersion, contact with minerals and antibiotic-vitamin mixtures. No longer need you worry about costly overages to offset deterioration. Unlike other sources of vitamin A, *the number of STABIMIX A units you mix with your feed stays with your feed longer!* It flows freely at all times, distributes evenly, and will not arch in hoppers of mechanical or vibrator feeders. Best of all, it saves you money in the bargain.

The convenience: STABIMIX A is packaged in easily-handled 50 and 100-lb. fiber drums. Various potencies are available to meet your every formulation need—including 10,000, 20,000, 30,000, 250,000 and 325,000 U.S.P. units per gram. Why not investigate for yourself the *stability, biological activity* and *profitability* of STABIMIX A in your feeds? Your Merck Sales Representative will be happy to discuss your needs. If you prefer, call or write Merck Chemical Division, Merck & Co., Inc., Rahway, New Jersey.

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*TRADEMARK OF MERCK & CO., INC., FOR A STABILIZED, DRY VITAMIN A FEED SUPPLEMENT. ©MERCK & CO., INC.

20 Papers on Magnesium in Nutrition Presented at West Virginia Meeting

By DR. D. J. HORVATH
West Virginia University

MORGANTOWN, W.VA.—A series of 20 papers dealing with magnesium in agriculture were presented at a recent West Virginia University symposium. Of interest to feed dealers were a number of them dealing with "grass tetany" and related problems.

The first series of papers dealt principally with plant and soil relationships. Dr. K. C. Beeson, U.S. Department of Agriculture, pointed out that magnesium deficiency problems are most frequent along the east and Gulf coasts, but that hypomagnesemia in ruminants has been reported in the Pacific Northwest. Also, "wheat-pasture poisoning," which occurs in cattle in Texas, Oklahoma and adjacent areas, may be associated with hypomagnesemia.

The fact that magnesium is often overlooked as a fertilizer element in the production of grain and forage crops for animal feed was attributed by Dr. D. A. Brown, University of Arkansas, to the fact that only limited response may occur when measured on a crop yield basis. Accordingly, forages and grains frequently may supply animals with less magnesium than their potential would permit.

In discussing the role of magnesium in animal tissues, Dr. J. J. Vitale, Harvard University, pointed out that though there probably are no clinical problems in man attributable to magnesium deficiency, magnesium deficiency exaggerates experimental atherosclerosis in animals on diets containing constituents inducing hypercholesterolemia.

Dr. Vitale noted also that cold temperatures increased dietary magnesium requirements two-fold.

Magnesium assay has proved a major stumbling block in research with this element, and problems of assay in soils, plants and animals were discussed at some length by Dr. G. T. Felback, University of Delaware; Dr. D. A. Brown, University of Arkansas, and Dr. N. M. Baughman, West Virginia University. These and the ensuing discussion may be valuable to feed control chemists.

Dr. Boyd O'Dell, University of Missouri, pointed out that both calcium and phosphorus at high levels may exaggerate magnesium deficiency in laboratory animals and he discussed magnesium requirements and availability for nonruminant mammals and poultry. Poultry were also used in the work reported by Dr. D. C. Shelton, West Virginia University, who found that high levels of dietary magnesium and/or calcium reduced the efficacy of oral tetracycline in controlling infectious synovitis.

Magnesium deficiency in calves fed whole milk was reported by Dr. J. W. Thomas, USDA, who studied dairy calves. Actually, such a deficiency is not common in the field on dairy farms, but does occur sporadically in beef calves since these animals are more often fed principally milk diets. Among the important points brought out by Dr. Thomas was the fact that magnesium utilization decreases appreciably as the calf matures.

Wheat-Pasture Poisoning

Wheat-pasture poisoning was discussed by Dr. R. E. Davis, USDA. He noted that although early therapy was quite effective, various feed supplements including vitamin D used as preventives may have delayed, but did not prevent the disease.

"Winter tetany" was discussed by Dr. F. D. Custer, a practitioner in western Maryland, who emphasized that cases of hypomagnesemic tetany occur regularly on winter feeding regimes before grass is available. Dr. L. Dosza, West Virginia University, described the signs and therapy of spring cases of tetany.

The importance of hypocalcemia, in many cases considered to be hypomagnesemia tetany, was emphasized by Dr. R. Marshak, University of Pennsylvania. He also noted that concentrate feeding seemed to reduce the death loss rate.

In the discussion that followed, it became evident that a rather similar series of clinical signs may be associated with very different chemical changes and causative factors.

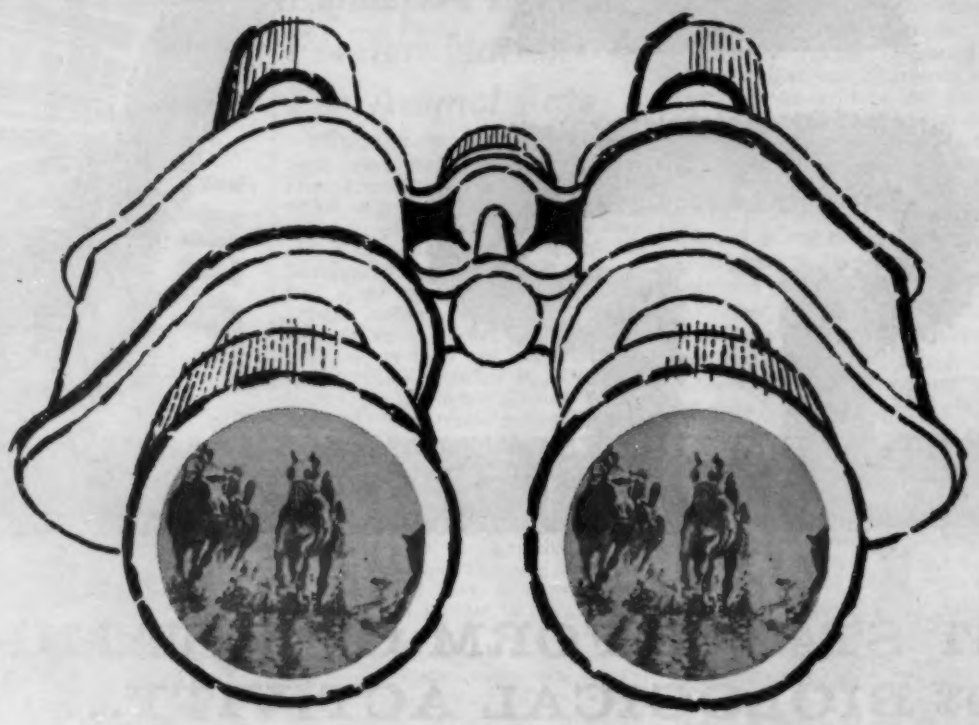
Experimentally induced hypomagnesemia in cattle was described by Dr. E. C. Leffel, University of Maryland. One of the important practical observations made by Dr. Leffel was that delay in cutting date of forages results in important losses in magnesium concentration as does leaching resulting from rain on down hay. Dr. Leffel also has been studying the palatability of various magnesium supplements added to silage with a view to preventive treatment.

The failure to induce tetany in pregnant or lactating ewes despite various rather vigorous experimental treatments was reported by Dr. R. B. Grainger, University of Kentucky. One interesting observation in the Kentucky studies was that tetany occurred in cattle having apparently normal serum calcium and magnesium levels, but low serum copper levels.

Pilot studies in West Virginia, reported by Dr. D. J. Horvath, suggest that magnesium supplements may be effective in achieving clinical control of "grass tetany" in beef herds. One problem that arises is getting cattle to clean up magnesium salts in grain supplements, such as corn chop, after they have had a taste of spring grass. This same effect of early grass in reducing feed intake was implicated as one of several possible factors in causing tetany. Spreading magnesium salts on corn silage was found to be an effective method of supplementation.

Dr. B. Barrentine, University of Mississippi, in the general discussion period, pointed out that a type of "grass tetany" occurs in sheep on winter cereals with disconcerting regularity, especially on a heavy calcareous soil. As in the observations of yfiifi..p c(,wvfinfi
Dr. Davis, Dr. Crookshank and Dr. Horvath, Dr. Barrentine noted that such pastures were often grazed so closely that sampling was difficult. Dr. Barrentine noted that several supplements were helpful preventives and suggested that some abnormal constituent of the forage may be responsible for the condition.

Proceedings of the symposium will be published in a few months and will be available from Dr. D. J. Horvath. Animal Husbandry Department, West Virginia University, Morgantown, W.Va. The price has been estimated at $2, Dr. Horvath said, but will be based on final publication costs.



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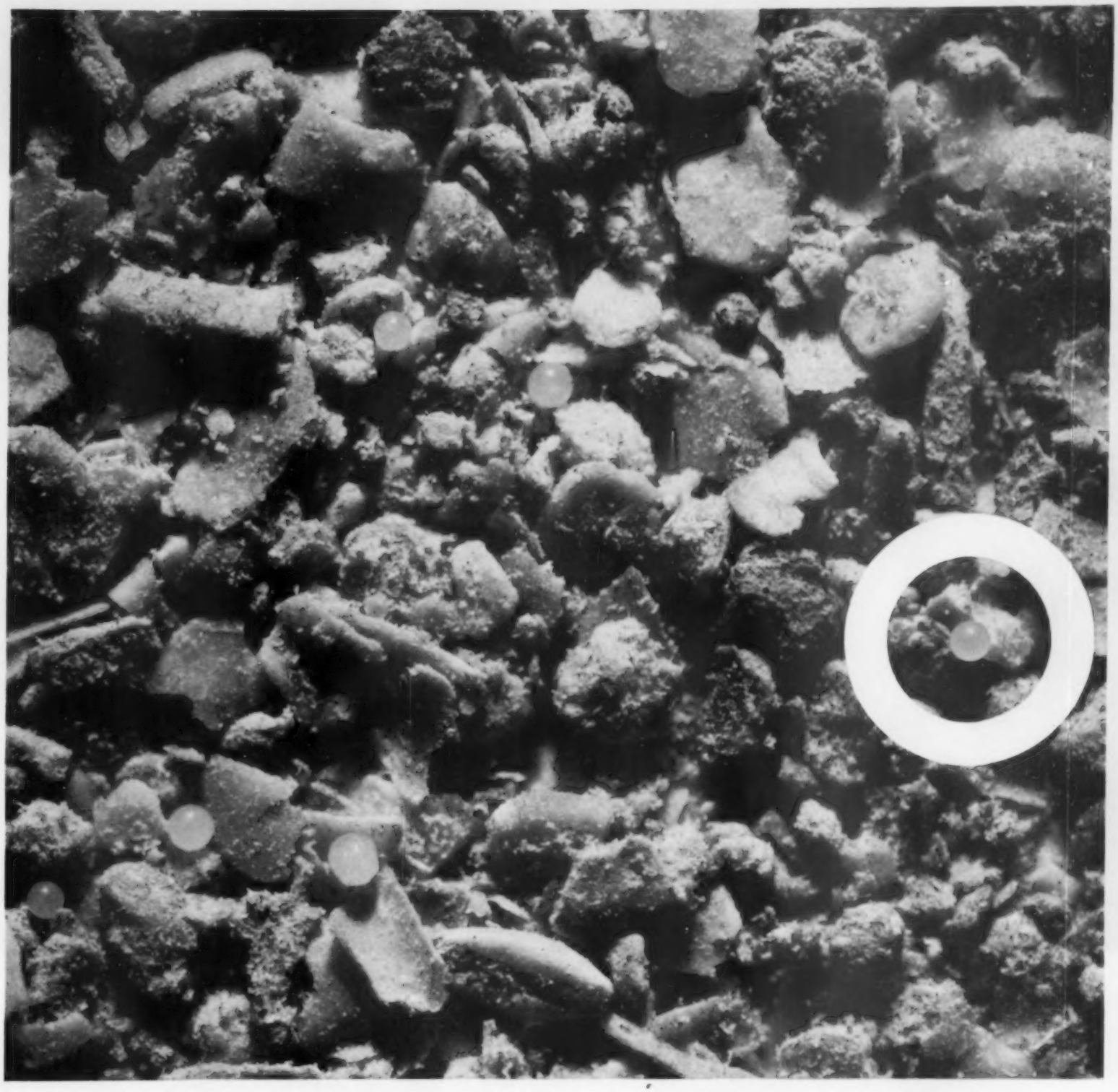

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Vitamin A leads a hard life among the other vitamins, the antibiotics, and the minerals in a commercial premix, as seen here at 25× magnification. A crystal of manganese sulfate, beneficial though it be to the bird, makes a rough traveling companion for anything as delicate chemically as vitamin A. As the temperature rises, so does the rigor of the situation.

Striving to be best rather than first at meeting the challenge, DPi has worked out its own way of protecting microdroplets of the stable ester, vitamin A palmitate, within such little gelatin spheres as shown above.

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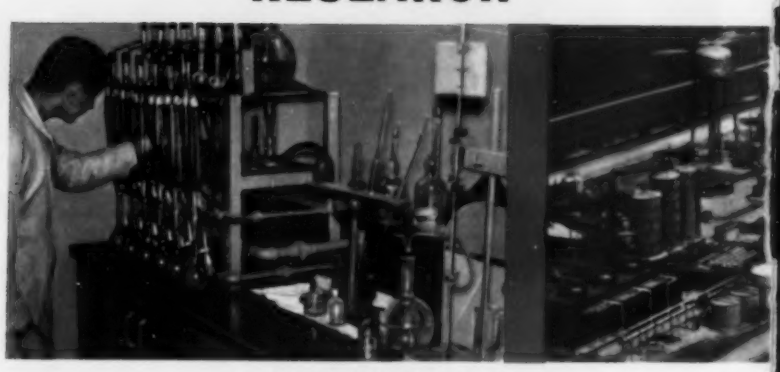

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IOWA STATE[1]

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Several pigs on the corn-soy basal ration exhibited borderline phosphorus deficiency symptoms.

SOUTH CAROLINA[3]

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1. Different Kinds and Amounts of Phosphorus in Fattening Cattle Rations. Agricultural Extension Service A. H. Leaflet 209. Iowa State College. Wise Burroughs, Arthur Raun, Edmund Cheng, C. C. Culbertson.
2. Phosphorus and Protein Levels for Growing-Finishing Swine on Legume Pasture. A. H. 215. Purdue University. C. E. Jordan, J. H. Conrad, M. P. Plumlee, W. M. Beeson.
3. Relation of Phosphorus Deficiency to Acute Bloat in Ruminants. H. P. Cooper, 69th Annual Report South Carolina Agricultural Experiment Station, Clemson, S. C., May, 1957.
4. Methods of Supplying Phosphorus to Range Cattle in South Texas. Texas Agricultural Experiment Station Bulletin 773. E. B. Reynolds, J. M. Jones, H. H. Jones, J. F. Fudge and R. J. Kleberg, Jr.

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Demand for Animal Feed Is Declining In America's Newest State

By Special Correspondent

HONOLULU, OAHU, HAWAII — The demand for animal feed is on the decline in America's newest state, Hawaii, according to feed dealers.

"We are watching our sale of animal feed steadily decline," declares Keizo Yasuda, manager of the Koolau Farmers Cooperative, Ltd., in Kaneohe, Hawaii.

He attributes this decline to several reasons. Decades ago on the island of Oahu, where Honolulu is located, the best land and water supplies were reserved for sugar and pineapple plantations.

Small farmers were left to depend upon marginal land and rainfall. Today the situation is much the same.

City Expansion

Added to this scarcity of good land is expansion of the city of Honolulu. Many small farms in outlying districts are being purchased by real estate operators and sub-divided into lots.

Population in the new state is expected to mushroom from its present half million population to 903,000 by 1970. Chamber of Commerce officials also estimate the population will be well over a million by 1980.

This decline in farm land naturally decreases the demand for animal feed.

Mr. Yasuda manages two stores in Oahu, located half an hour's drive over the mountain from Honolulu. His dealership consists of the main store in Kaneoha and a branch store in Kailua.

All feed sold on the island is shipped from the mainland in bulk.

Distributors store the feed in silos, then bag and distribute it to local island dealers.

Mr. Yasuda, assisted by three employees, services the firm's 500 feed customers in both stores. They use no outside salesmen.

Diversification

Knowing his feed sales are decreasing as the island's population increases, Mr. Yasuda has already started diversification of his operation. He sells his regular line of feed, chicks and a few animal health remedies. He is augmenting his line with a stock of fertilizers, insecticides, garden tools, pet supplies, seeds, plants and flower gardening supplies.

"We are diversifying our operation to appeal to the small suburban home owner," Mr. Yasuda explained. "We are bending with the market, so to speak. As our feed business decreases, we plan further emphasis on suburban home owner needs."

Mr. Yasuda plans to add more gardening supplies to his inventory and is planning construction of a greenhouse adjacent to the main store.

Another feed dealer on the islands privately admitted concern over the local trend toward urbanization of farmland. "We've laid no concrete plans for our store, as yet," he explained. "We can't all sell canary seed and garden rakes."

His firm, located in another section of the islands, has investigated the possibilities of establishing a modern garden center.

"What it will mean is scrapping our present store and acquiring land for construction of a completely new store. We don't feel we can convince women shoppers to come into a reconverted feed store for their garden supplies," he explained.

His firm regularly supplies feed to more than 400 customers, current accounts running to small farmers with a few cattle or farm animals. He has one outside salesman, who also handles deliveries.

About a year ago the dealer added a line of lawn mowers, lawn seeds and supplies. He stated his satisfaction in sale of the new products.

Rather wistfully, he expressed his love of the feed business and mentioned the possibilities of selling out and moving to the mainland for a fresh start.

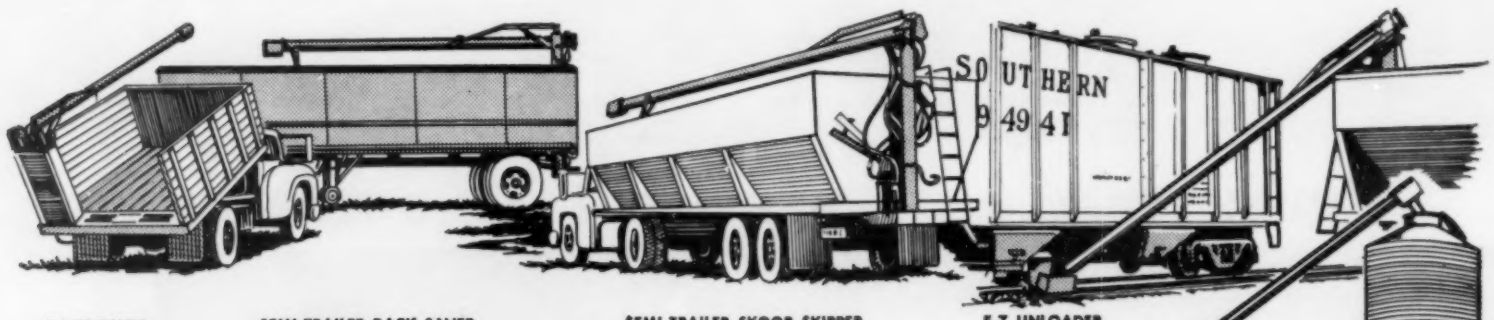
One of the island's larger feed distributors admitted his firm was searching for a diversification. He pointed to several large storage silos. "Do you have any ideas on what to do with those? We're already storing all the feed we need in about half of those silos."

Several other feed dealers in the islands agreed with the distributor and Mr. Yasuda—all are actively planning diversification to augment the decline in feed sales.

It is apparent that demand in our newest state will not be for animal feed and supplies, but for landscaping plants, shrubs, trees, house plants and garden supplies.

BUILDING $90,000 MILL

MAUSTON, WIS.—Mauston (Wis.) Farmers Cooperative is building a new $90,000 structure to replace the present feed mill and warehouse, which is to be torn down.



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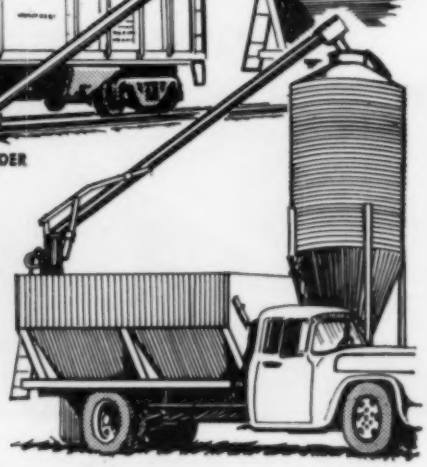

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Poultry Exchange in Arkansas Grows; Sellers Get More Money

By DAVID MARTIN
Feedstuffs Special Writer

SPRINGDALE, ARK. — The new Arkansas Poultry Exchange, Inc., Springdale, established last spring as the nation's third large-volume poultry auction, apparently is meeting with considerable success.

The auction has averaged more than 200,000 broilers per day since its initial sale last June 23, and the daily volume appears to be increasing steadily, according to Henry Thomason, manager.

He said that in recent days broiler consignments by area sellers have run as high as 410,000 birds—an indication that the auction is gaining in popularity.

The apparent success of the exchange, which serves the large northwestern Arkansas poultry area and sections of adjoining Missouri and Oklahoma, is in marked contrast to the reception given similar establishments in other sections of the nation. Industry officials make no secret of the fact that some auctions have met stiff buyer resistance. Mr. Thomason admitted, however, that there is a slight undercurrent of buyer resistance even at Springdale.

Asked point-blank about the problem, he replied, "Yes, actually we do have a slight amount of buyer resistance, but it is nothing serious. I feel that any poultry auction—which, of course, is operated by the sellers, will meet with a certain degree of buyer dissatisfaction and resistance.

"We are very well satisfied with our operation to date."

Total Savings

Mr. Thomason recently told the Rogers, Ark., Rotary Club that sellers have realized an additional $100,000 from the sale of broilers through the exchange. He attributed the increased income to the 1/10¢ lb. breaking point in sales.

He told the Rotary Club the exchange has averaged handling 867,300 chickens per week. He said this represents 22% of the total broiler sales in Arkansas, and 50% of the sales in this immediate producing area.

"One of the key factors in our success," he said, "has been the fact that the exchange has helped remove the sellers' dependence on only one or two processors."

Mr. Thomason said the facility has helped concentrate selling power to offset the power of the major buyers to set their own prices. "Until now, the owner has really had little control over prices," he said.

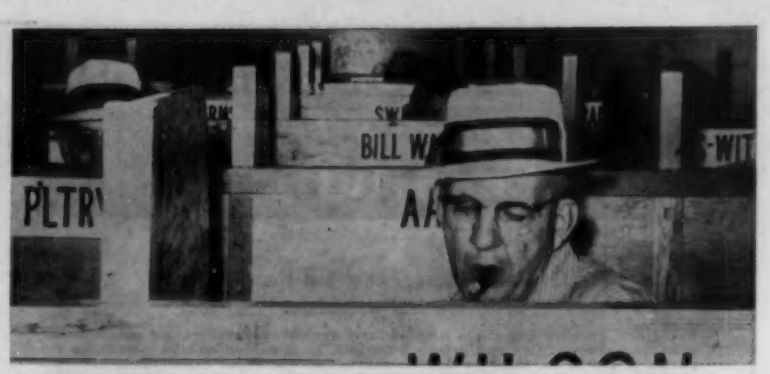
He said the competitive bidding was the reason the average selling price was higher than sales for the same day on the regular markets on 40 of the 48 sales held by the exchange.

Mr. Thomason claimed that the one tenth breaking point could add a half million dollars to gross broiler sales in Arkansas each year.

He cited two other major benefits from participation in the exchange—signed contracts between buyer and seller, and grading and inspection by the facility's inspectors. Under the signed contracts, the buyer must pay for the birds within 48 hours after delivery.

As Mr. Thomason noted, the principal support for the exchange comes from the sellers, which include many feed manufacturers, dealers and integrators.

In fact, the founders of the auction were large-scale producers. Many of them are directly involved in the feed manufacturing-poultry integration business.



POULTRY BUYERS—Several buyer booths at the Arkansas Poultry Exchange are shown. Only the auctioneer and the seller know who is bidding, although results are announced when each lot is sold.

EXCHANGE MANAGER—Henry Thomason, manager of the Arkansas Poultry Exchange, is shown taking bids while assistant manager Wayne Neff looks on. Mr. Thomason is a graduate of Mississippi State College.

AUCTION DESK—Cards at the auction desk of the Arkansas Poultry Exchange show which lot of birds is being sold, and which lot is scheduled next. Henry Thomason, manager of the exchange, is shown at left. His assistant, Wayne Neff, is also pictured.

Members of the board of directors are Thomas D. Hagan of Rogers, president; D. Tyson of Springdale, vice president; Harold Reese of Springdale, secretary-treasurer; Charles Garrett, Rogers; Jeff D. Brown, Springdale; Glen Parsons, Springdale; Carl Henson, Prairie Grove; E. E. Keever, Elm Springs, and E. D. Wilmoth, Decatur.

Besides bringing buyer and seller together at a central location, the biggest advantage of the auction is the pricing policy. Prices are broken on 1/10¢ lb., instead of the customary 1¢.

With growers no longer waiting for a 1¢ fluctuation in prices, there is a steadier flow of birds to market.

Mr. Thomason figures that the prices of broilers sold through the exchange have averaged approximately ¼¢ lb. above those on the regular Arkansas markets.

"It doesn't take long to see that this extra ¼¢ lb. has put several thousand dollars into the pockets of sellers," he points out.

Commented one feed manufacturer-integrator, "I feel this auction gives us a tremendous advantage that we did not have under our previous system." Another said, "I like the 1/10¢ lb. breaking point in prices. It could mean the difference between profits and losses."

Generally, comment from sellers and feed integrators runs along these lines. Most of them feel the chief advantage is the price breaking point, while some list other reasons.

A prominent industry official said, "Northwest Arkansas poultrymen took a big step forward in improving their marketing facilities when this exchange was established."

Processors and growers in Arkansas, Oklahoma and Missouri are taking advantage of the facility, which serves a radius of some 60 miles in the three-state area. Some buyers have come from as far away as Muskogee, Okla.

The auctions are held each Monday, Tuesday, Thursday and Friday in a concrete block building located on Highway 71 North.

Auction Operation

Unlike livestock auctions, the only sound is the chant of Mr. Thomason as he auctions the various lots of broilers.

Buyers seated in individual, enclosed booths press buttons to register their bids, and only Mr. Thomason, the clerks and the seller know who is bidding.

When a buyer presses a button in his booth, it turns on a red light beside his name on the instrument panels in front of the auctioneer and the seller. A higher bid automatically erases the previous bid.

The clerks post the results of the bidding on each lot as soon as a decision is reached. The sellers have the right to reject what they may believe to be unsatisfactory bids, and many times they do just this.

Each seller's place in the auction is determined before the sale by drawing lots. All sellers must hold at least one share of stock in the exchange to be eligible to enter his poultry.

Buyers apparently make many of their decisions about purchasing certain lots before the auction begins.

All poultry offered for sale is carefully inspected by two experts employed by the exchange. Then the quantity and quality of each lot are listed on mimeographed sheets which are distributed about 30 min. before the sale starts. Buyers follow the auction with their sheets, and by referring to the lot numbers posted on the auctioneer's stand.

Processors like the auction because it assures them of a source of obtaining an even flow of birds, and it gives them the opportunity to select the quality they want.

"I can purchase premium quality birds at the auction," says one processor. "In the past, I had to rely on buying in a haphazard manner."

Stockholders' Meeting

Mr. Thomason announced that the exchange will hold its first annual stockholders' meeting on Oct. 22.

He said a new board of directors and officers will be elected at the meeting, and that the corporation will take up some new plans. He did not elaborate about future intentions of the group.

Joseph Friedman, Joseph Friedman Brokerage Co., New York, has tenta-

OPENING BIDDING—Henry Thomason, manager of the Arkansas Poultry Exchange, presses a button which starts bidding on a new lot. Bids are registered on a panel directly in front of him.

SELLER—A seller at the Arkansas Poultry Exchange is shown checking his sheet and following the bidding on his birds by watching the panel at right. A clerk records sales as the auction progresses, and furnishes a mimeographed report of the day's sales shortly after the last lot is sold.

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83% USE FAT

MEDIUM MILLS

58% USE FAT

SMALL MILLS

23% USE FAT

But, now, economical, easy, messless Econoloc answers the competitive threat by bringing fat within reach of every mill.

*USDA AMS
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BUYER BOOTHS—Buyers in individual, enclosed booths follow the auction on mimeographed sheets describing the day's offerings at the Arkansas Poultry Exchange. If he wants to bid, the buyer presses a button which lights up a red light on a panel in front of the auctioneer, clerks and seller.

tively accepted an invitation to speak at the meeting, Mr. Thomason said.

Mr. Thomason said the exchange has temporarily dropped plans to conduct a regular turkey auction. He said the proposal will be taken up next year "when we have time to definitely set up a good turkey program."

Bailey Firm Produces New Food for Dogs

MONTPELIER, VT.—E. W. Bailey & Co. has announced the production of a new homogo-mixed dog food to be sold in 5 and 25 lb. bags.

In connection with the introduction of the new product, the firm announced that, for a limited time, it will pay $1 cash just to try the 25 lb. bag. The offer will expire Nov. 15, the firm said.

Dairy Specialist Moves

SACRAMENTO—Robert D. Appleman, formerly agricultural extension service dairy specialist at the University of Maryland, has taken over the California extension dairyman post left vacant by the death of G. E. Gordon.

Mr. Appleman will share the state's extension dairy duties with C. L. Pelissier of the Davis campus, University of California.

Possible Drop in Cattle Profits Seen

URBANA, ILL.—Prices for fed cattle during the next year will probably average about the same as prices for the past 12 months, but profits may be less because of the higher cost of stocker and feeder cattle. This is the opinion of Dr. M. B. Kirtley, extension specialist in livestock marketing at the University of Illinois.

Dr. Kirtley says he thinks prices of fed cattle for the fall and winter months will be equal to or slightly above those of last year, when prices averaged about $27 for choice steers in Chicago.

Since the spring pig crop to be marketed this fall was 12% larger than last year's crop, supplies of pork will undoubtedly provide strong competition for beef in retail markets, according to Dr. Kirtley.

If hog marketings are bunched and prices drop extremely low in the late fall and early winter, cattle prices could weaken, he said. Later in 1960, prices may drop below those for the corresponding months of 1959 because of greater competition from pork, and slightly heavier marketings of cattle.

CO-OP BUILDS

WEST UNION, IOWA—A new elevator and mill for the West Union (Iowa) Cooperative Co. is nearing completion. An adjoining warehouse is also being built. The new building will house facilities to mix and manufacture feeds and also will provide for the installation of pelletizing equipment at some future date.

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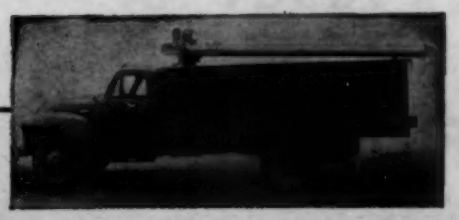

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SALES REPRESENTATIVE—Pierre Guberan, director of the newly formed company, Euram S.A., inspects one of mobile feed units manufactured by the Barnard & Leas Manufacturing Co., Inc., Cedar Rapids, Iowa. Euram S.A. was recently appointed the Cedar Rapids firm's exclusive sales representative for western Europe.

Barnard & Leas Names Europe Representative

CEDAR RAPIDS, IOWA—Barnard & Leas Manufacturing Co., Inc., Cedar Rapids, has announced the appointment of Euram S.A., 10 Place de la Gare, Lausanne, Switzerland, as its exclusive sales representatives for western Europe.

Euram S.A. will be responsible for the sale of the B&L mobile formula feed blender, B&L skid mounted formula feed blender and the liquid fertilizer processing equipment manufactured by the chemical plants division of Barnard & Leas.

Pierre Guberan, director of the newly formed company, Euram S.A., has just completed an extended visit at the Barnard & Leas factory in Cedar Rapids, studying installations utilizing the B&L mobile formula feed blender and liquid fertilizer processing plants installed by the firm.

Euram S.A. will be responsible for the sales, service and parts supply throughout all of western Europe.

Barnard & Leas Manufacturing Co., Inc., has already placed its mobile feed units with Provimi S.A. and P. Langer Gland S.A. in Switzerland and has scheduled five additional units for shipment to western Europe.

Wilson Names Animal Feed Assistant Head

CHICAGO—John E. Henry has joined Wilson & Co., Inc., as assistant manager of the animal feed department, according to a recent announcement by J. Russell Ward, manager of the department.

J. E. Henry

Mr. Henry has experience in the animal protein field, having been manager of a similar department for Armour & Co. until the closing of the Armour plant in Chicago.

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Wirthmore Mill Moves Toledo, Ohio, Offices

WALTHAM, MASS.—The offices of Wirthmore Mills at Toledo, Ohio, were moved recently from 2000 West Central Ave. to East Broadway, adjacent to the firm's mill, it was announced by C. D. Worthing from Wirthmore's home office in Waltham.

Mr. Worthing said the purpose of the move was to shorten the distance between the mill and office, avoid local traffic congestion and generally increase over-all plant efficiency.

The new air-conditioned, one-floor structure will also house a group of Corn Products Co. sales personnel. E. W. Peters is Wirthmore plant manager at Toledo.

MOBILE MILLING

LIME SPRINGS, IOWA—Chester Mobile Milling has announced mobile feed milling service is now available to farmers in the Lime Springs area.

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A *Lilly* MESSAGE TO THE MAN WHO WANTS TO SELL MORE FEED

A "Feeder-Dealer" discusses Hygromix from both sides of the fence

John Danckwart is both a hog feeder and a feed dealer. As a feeder, he uses Hygromix. As a dealer, he now sells Hygromix feeds on the solid basis of results from personal experience.

by Eugene S. Hahnel

Mr. Danckwart plans for about 100 litters a year from 48 brood sows. Under his management plan, the sows farrow twice a year, and new litters are born every two months. The young pigs get Hygromix early in their starter feed and continue until they average about 100 lbs.

JOHN W. DANCKWART, **FEEDER:**

"I think Hygromix is one of the biggest advancements in the history of swine raising. We haven't seen a worm since we started using it."

When we visited Mr. Danckwart's farm at Wabasha, Minnesota, he had 173 larger pigs and 71 smaller pigs on hand. The small pigs had been farrowed by seven sows, giving him a litter average of 10.3 pigs weaned per sow.

He told us that on April 4 the 71 pigs weighed an average of 46½ lbs. after consuming $2.46 worth of creep feed. On April 26, after eating 100 lbs. of Hygromix grower (at a total cost of $3.31), they averaged 86½ lbs. each. The cost of gain for this period figured out at 8.27 cents per pound.

"Our records show that our pigs have gained faster, and at less cost, since we began using Hygromix," Mr. Danckwart told us, "... and, the faster a pig gains, the less he costs because you aren't spending as much feed for body maintenance."

Mr. Danckwart summed up his personal experience with Hygromix feeds this way: "I think Hygromix is one of the biggest advancements in the history of swine raising. We haven't seen a worm since we started using it. When you control worms before they do their damage, you automatically prevent a lot of the problems that have plagued swine raisers up until now.

"We feel our pigs have been finishing more evenly since we started using Hygromix. We've had fewer tailenders, and we can top out a bigger share of our pigs at market time."

JOHN W. DANCKWART, **DEALER:**

"As a man who contacts a lot of farmers, I've come to the conclusion that Hygromix must be fed properly and continuously as recommended."

From his personal feeding experience with Hygromix, John learned several things which he passes on to his customers.

"I've come to the conclusion that Hygromix must be fed properly and continuously as recommended. You shouldn't let your customer run out of Hygromix concentrate and skip it for a week or two. Also, they shouldn't water down the level of Hygromix in the ration with pasture, slop, or grains. You've got to feed it right to get the best results.

"Sometimes, you've got to overcome an objection about the cost of the proper amount of supplement. I asked one man who complained, why he didn't save money by just putting five quarts of oil in his tractor instead of seven. He said, 'because it takes seven quarts.' I told him the same point applied to Hygromix feeds. When you feed the way you're supposed to, you get the results the manufacturer says you will."

An observant man, Mr. Danckwart found another advantage to Hygromix feeds that many customers may not be aware of. "If you watch hogs close, you'll see the bigger ones bully the smaller pigs away from the feed door. The little pigs have to sneak their feed, so they don't get enough. Hygromix seems to help the pigs get off to an even start, and there's fewer smaller ones to fall more and more behind."

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Integration Trends Pointed Out to Vets and Feed Men

COLUMBIA, MO.—Trends requiring an increase in contributions by both feed men and veterinarians were foreseen in a talk on vertical integration in agriculture given by Prof. C. E. Klingner, extension agricultural economist, at recent district meetings of the Missouri Veterinary-Nutrition Conferences conducted throughout the state.

He said the feed industry will be providing more of the services formerly provided by farmers themselves —in the preparation of mixed feeds and in using additives.

"Feed industry will be providing more of a service rather than just merely selling feed," he said. "Certainly management will be a very important factor, and it is important that all of us with know-how in management and in skills in this area work together for the common good of all of the industry."

Vertical integration, he said, involves larger units and will increase the importance of a health program. "One could speculate that in very large operations veterinarians may provide services on a retainer fee basis," Prof. Klingner commented. "The veterinarian will likely be quite intimate with the entire feeding and management program in order to maintain an effective health program." He said it was his understanding that it had been estimated there would be a need for 27,000 veterinarians by 1975, compared with the 19,000 now practicing.

"What the business relationships of the veterinarian might be to the production manager are difficult to ascertain at present," he said. "It is certain that production and the reorganized arrangement will be much more dependent than is now true of the veterinary profession, not only on the farm, but behind the scenes in feed and nutritional formulations."

Poor Range Prospects Reported for Wyoming

DENVER, COLO. — Livestock and ranges made some gains in Colorado in August and prospects for fall range feed in Wyoming are poor to fair, according to the crop and livestock reporting service in the two states.

Moisture last month partly relieved dry conditions and left improved prospects for fall feed in western and extreme southeastern Colorado. The northern and central plains received only scattered moisture.

The condition of Colorado range feed on Sept. 1 was 80% of what authorities regard as the best possible condition, compared to 77% Aug. 1, and 82% Sept. 1, 1958.

Condition figures on Colorado cattle were 86%, 85% last month and 88% a year ago. Sheep conditions were reported 86%, 83% in August and 87% for September, 1958.

Wyoming's range grass is short and extremely dry in most areas. The supply of hay, including a heavy carryover from last year, appears ample to feed livestock through a long winter feeding period, according to reports.

Wyoming livestock is being moved from the high country to market and winter pastures, with some 25% of the lambs and 15% of the cattle having been shipped to market.

CANADA COWS

OTTAWA—A total of 631,668 cows in Canada were bred by artificial insemination last year, according to J. D. Baird, Canada Department of Agriculture, livestock division. This is a 25.0% increase over 1957.

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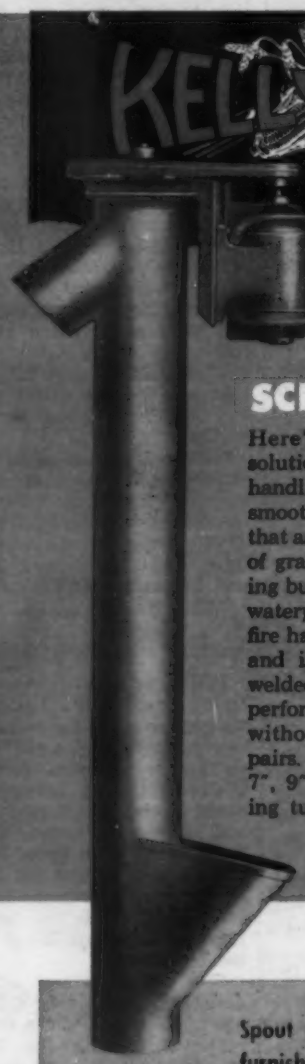

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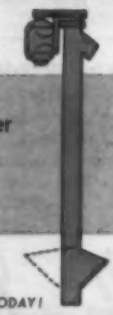

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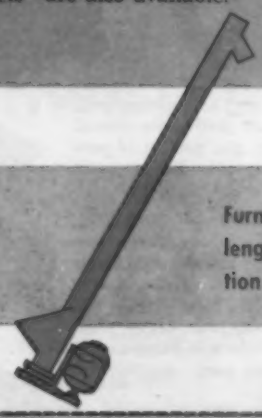

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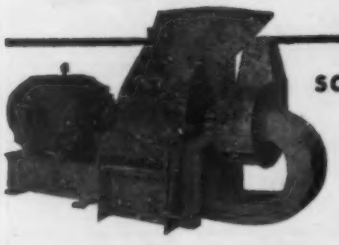

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DINNER TIME—Shown at dinner time are some of the 2,000 farm boys and girls, parents, 4-H, FFA and Future Homemakers of America leaders at the 5th annual Stamper Youth Auction at Moberly, Mo. Guests were served banquet ham dinners and banquet fruit pie, products of the F. M. Stamper Co. food division.

5th Annual Stamper Youth Auction Held

MOBERLY, MO.—The 5th annual Stamper Youth Auction for farm boys and girls was held recently at Moberly.

The "no money" auction offered 25 calves, 30 registered gilts and 1,000 pullet chicks to the highest 4-H or Future Farmer of America bidder in stamps from feed. Ten calves were given away in a calf scramble.

The event also included a fitting and grooming demonstration by John Bezanson, product development director for the F. M. Stamper Co. mill, using the reserve champion fat steer of the FFA Junior Show at the Missouri State Fair.

Another feature of the program was the livestock and poultry show, in which boys and girls who had purchased calves and chicks the year before competed for $320 in prizes and trophies.

Join Swisher Program

DANVILLE, ILL. — The Swisher Feed division of the Wm. Davies Co., Inc., Danville, announced the recent appointment of four independent milling companies to the Swisher "feed service" organization.

They are: Morrow Milling Co., Russellville, Ala.; Repsold Feed Service, North Judson, Ind.; Huber Feed Mill, Fillmore, Ill., and Daily Mill & Elevator, Palestine, Ill.

These mills work under a territorial franchise arrangement and manufacture Swisher feeds locally, using special "super concentrates" while using locally obtained grain and soybean oil meal. Each local mill is in a position to manufacture a complete line of Swisher concentrates and finished feeds, which they sell under the Swisher brand name.

PLANT SOLD

JEFFERSON, IOWA—The Andrew Farm Store mixing and grinding plant has been sold to Howard Nelson, owner of the Nelson Feeder Service here, according to Jim Andrew, owner of the Andrew Farm Store.

Alfalfa Meal Output 6% Above Last Year

KANSAS CITY, MO.— U.S. production of alfalfa meal during the May-August season was 6% greater than for the same period in 1958, the Kansas City grain division office of the Agricultural Marketing Service reported this week. The 889,500-ton total for the 1959 season was made up of 50,400 tons of suncured meal and 839,100 tons of dehydrated meal. A year earlier, a greater proportion of the 834,000-ton total was suncured meal (53,800 tons).

August's alfalfa meal production was down to 227,600 tons from July's 257,400 tons, and was 13,400 tons less than the August, 1958, total.

Records showed that stocks of alfalfa meal at producing plants Aug. 31 were 403,900 tons—6,200 tons more than at the same date a year earlier and 93,000 tons more than a month earlier.

Nebraska continued as the leading alfalfa meal state in August, with a monthly production of 98,000 tons. In second place was California, with 23,700 tons; third, Kansas, 22,200 tons; fourth, Colorado, 17,400 tons, and fifth, Ohio, 14,300 tons.

G.L.F. Directors

ITHACA, N. Y. — Two New York farm organizations have nominated farmer-members for reelection as directors of Cooperative G.L.F. Exchange, Inc., Ithaca. J. C. Corwith, Water Mill, Long Iisland, was nominated by the New York State Grange, and Harold G. Soper, Geneva, N.Y., by the New York Farm Bureau.

The Farm Bureau and Grange have been represented on the 14-man board since 1920, when the two organizations were instrumental in forming the cooperative.

Five other farmers will be nominated as directors at G.L.F. district meetings, and all seven will stand for reelection during the 39th G.L.F. stockholders' annual meeting, Oct. 22-23 in Onondaga County War Memorial, Syracuse, N.Y.

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PRO-STREP *in her ration protects her health, aids her growth*

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PRO-STREP is a combination of two antibiotics—*penicillin* and *streptomycin*—each with a highly specific activity. In PRO-STREP they work together to produce added benefits neither could furnish alone...to stimulate feed consumption, improve weight gains and feed conversion, promote better uniformity of gains *and* help prevent costly outbreaks of swine enteritis or "necro."

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IDEAS TO HELP YOUR CUSTOMERS

Pelleted Alfalfa Hay for Milk Production

● M. Ronning, J. H. Meyer and G. T. Clark, University of California; Journal of Dairy Science, Vol. 42, No. 8, August, 1959, pp. 1373-1376.

ABSTRACT: Twelve cows were placed on a multitreatment switchback designed experiment so that pelleted and chopped alfalfa hay could be compared with and without feeding of supplemental concentrates to milking cows.

The pelleted hay was prepared from baled alfalfa ground through a 3/16-in. screen and pelleted ¾-in. without steam or water. The bulk density of the pellets was 42 lb. cu. ft.

The chopped hay was prepared by taking alternate bales and chopping in approximately ¾-in. lengths with a field chopper. The treatments involving concentrates were fed the following mix: 54% barley, 20% molasses beet pulp, 15% wheat mixed feed, 10% cottonseed meal and 1% salt (approximately 13+% total protein).

Both forms of hay were fed individually in amounts to insure refusals, and concentrates, when fed, were offered according to requirements—with the exception that certain cows toward the end of the trial consumed sufficient hay to meet their energy requirements, and in those cases a minimum of 2 lb. concentrate was fed daily. All observations were based on 28-day periods, preceded by 7-day preliminary periods in the double reversal scheme.

Significantly, more 4% FCM was produced on the pelleted than the chopped hay when neither form was supplemented with concentrates. (28.1 vs. 23.7 lb. cow/day). Supplementation of the chopped hay with concentrates at the rate of about 12% of the total dry matter intake resulted in a significant increase in production, however a similar increase in concentrate feeding on the pelleted hay ration had no such effect and, therefore, pelleted and chopped diets supplemented with concentrates showed little difference in production (27.9 vs. 27.0 lb. cow/day).

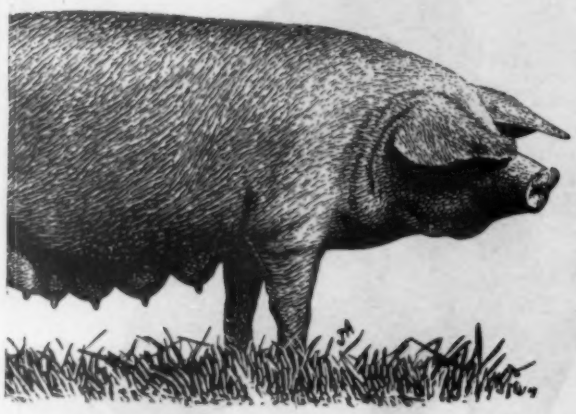
It is entirely obvious from the data that the levels of production were dependent upon the levels of dry matter intake achieved by the cows on the various treatments. Butterfat was unaffected, but liveweight gains by cows on the chopped hay were poorer than those on the pelleted roughage. No difficulty was usually observed with switching rations abruptly, and in only one instance was it necessary to coax a cow to accept the pellets for an initial three day period.

COMMENT: One of the surprising results from this California work is the fact that the all-pellet diet supported as good milk production as it did, even though the estimation of TDN content of the hay by the method of Meyer and Lofgreen revealed a level of 53% TDN. Also, the fact that no depression of butterfat percentage was present in this study is somewhat contrary to previous reports on this subject (Jones et al., 1958; Blosser and Shaw, 1959; Ward, 1959; Ensor, 1959; Fossland, 1958), if the forage is ground quite fine before pelleting. Better results are seen with respect to butterfat percentage, if the roughage is coarsely ground or if hay "wafers" are used.

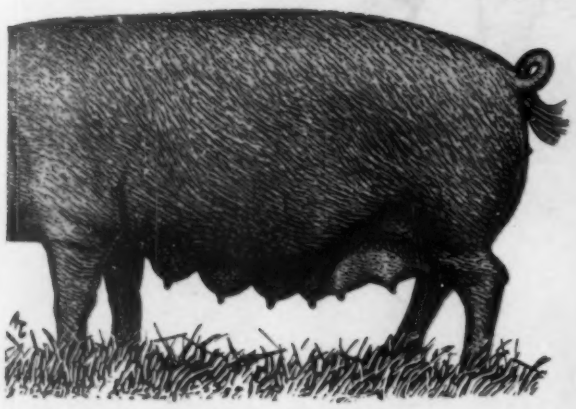
It is very dubious in my opinion whether the results of double changeover type of experiments can be directly applied to field situations, especially with regards to effects of physical forms of feeds, with only 28-day experimental periods.

The reason for this is quite obvious. It takes time for the cows to become fully accustomed to the various diets. For example, it was recently reported (Farm Journal, 1958 and 1959) that all-roughage pellets of ⅜-in. diameter were just the ticket in the opinion of a large commercial dairyman located in Madera County, Cal. He was saving on feeding time, cows were producing milk as well as three other strings on different combinations of hay, silage and green chop and he wasn't getting the drop in butterfat

(Turn to page 75)



Pigs Who Think *Prefer* Schenley SOLUDRI



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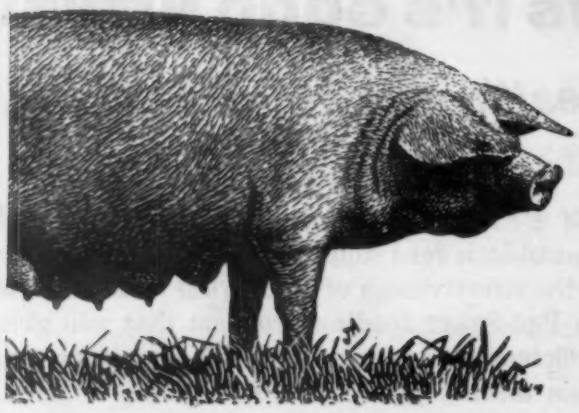

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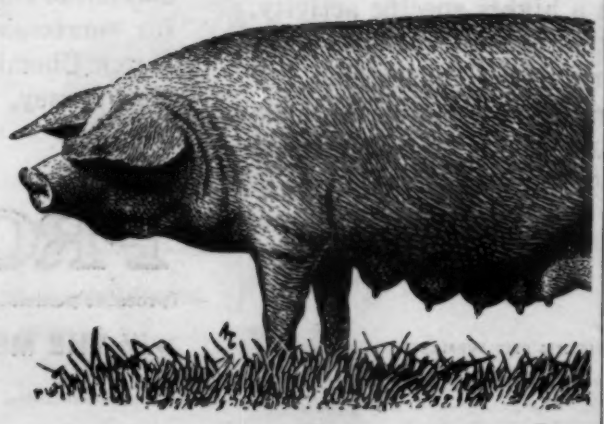

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test (probably because of the coarse chop before pelleting). But—he quickly found that the cows really stowed the pellets away. In fact, an average of 60 lb. of the ⅜-in. pellets per day! Naturally, the cows did not put it into the bucket, but on their backs, at an average of 2.04 lb. per day during one month!

The cows still produced fine, but because they ate so much and put so much fat on their bodies, the cost of milk production was $1 cwt. more than the cows fed other combinations of roughages in the usual manner. No dairyman can live long on such results.

It is probably best to feed pelleted roughage along with some other roughage to cut down consumption (for example, good silage or soilage). Also, results so far reported with the larger wafers indicate they avoid most of the troubles experienced with pellets for milking cows. Certainly pellets should be coarsely chopped and used with care for milking cows.

◆

Timely and Worth Noting

Usually, sweet clover poisoning chiefly affects adult ruminants eating spoiled sweet clover hay or silage with little effect upon young animals. A recent report (Sweet Clover Poisoning in Newborn Calves, C. M. Fraser and J. Nelson, Journal of the American Veterinary Medical Assn., Vol. 135, No. 5, Sept. 15, 1959, pp. 283-286) demonstrated, however, that the condition can occur in young calves born without assistance and with their dams and the rest of the herd apparently unaffected.

The calves that died exhibited extensive hemorrhages within a few hours of birth, characterized by bleeding of the subcutaneous and mucosal tissues. One affected dam freshened during the period the diagnosis was finally made, and was treated unsuccessfully with vitamin K in the form of menadione sodium bisulfite (100 mg.) by mouth for two days before freshening. Her calf was also given 15 mg. of the same preparation one hour after birth. This proved inadequate as the calf became progressively weaker. When given 500 ml. of whole citrated blood approximately 18 hours after birth, the calf made an uneventful recovery.

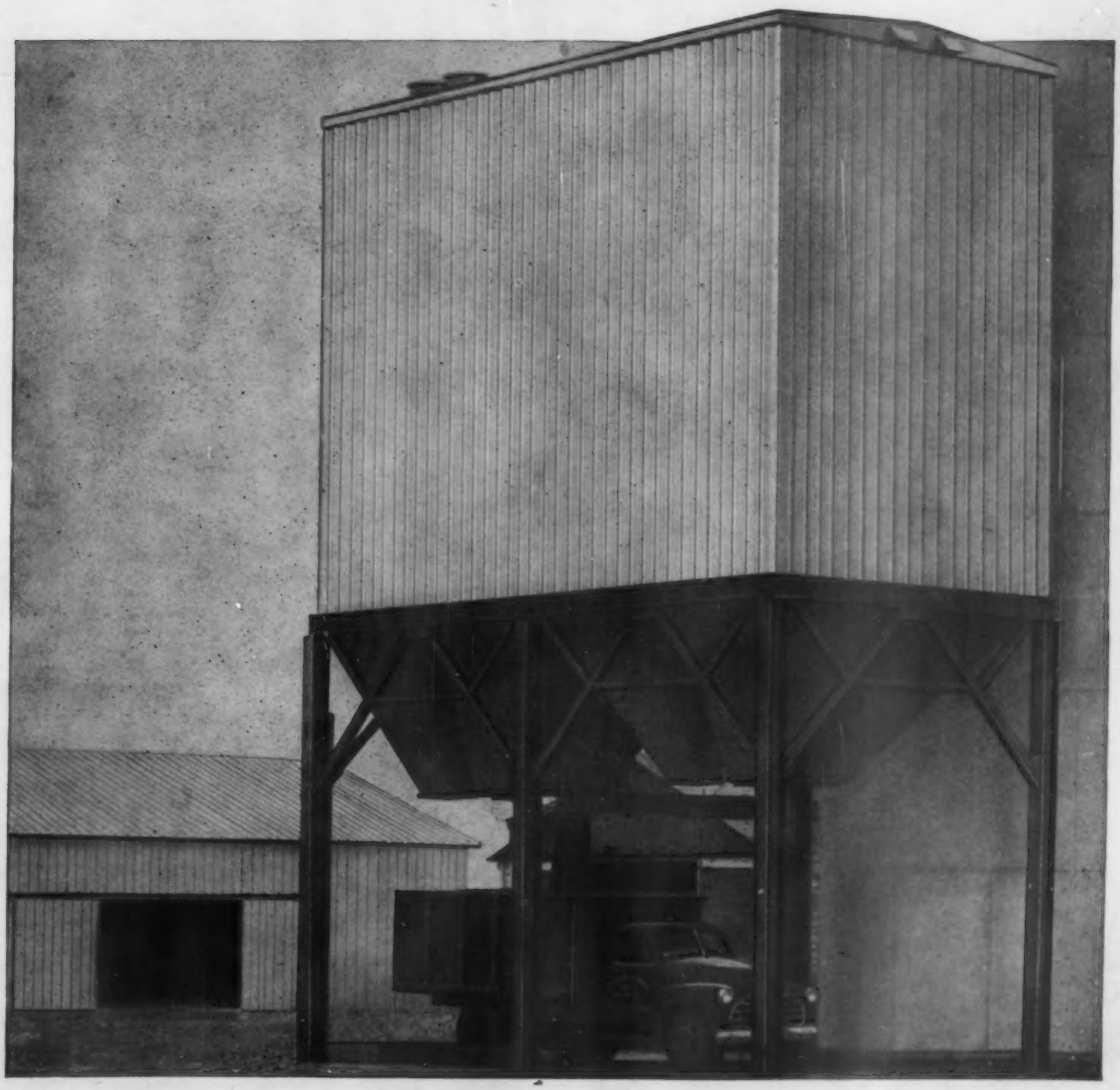
The failure of vitamin K therapy is contrary to the diagnosis of sweet clover poisoning, but the dosage given may have been inadequate.

EATING PLACE CALLED 'THE GRAIN SHED'

LEE, N.H.—An old building in the Lee Hill section, which was originally a grain shed in the early days when the area was a bustling trade center, has been renovated for use as a new restaurant.

However, the early history of the structure will not easily be forgotten because the management of the new eating place will call it "The Grain Shed."

Butler Bulk-O-Mates—Planning to expand and go after profitable bulk feed business in new areas? Here's the newest way to build big-capacity, free-flowing terminal load-out, or country load-out and receiving stations. Bulk-O-Mates are completely "packaged" installations including roof deck, square tanks, hoppers and supporting structurals. You save costly planning and construction time, get into business sooner. Available in tank capacities from 1 to 50 tons. Contact your authorized Bolted Tank Contractor. Or write direct.



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Cyanamid Announces Research Staff Changes

NEW YORK—A realignment of key research scientists in the Agricultural Division of American Cyanamid Co., New York, has been announced by Frank S. Washburn, divisional general manager.

Dr. J. T. Thurston has been named manager of research and development; Dr. E. L. R. Stokstad, director of research in biological sciences, and Dr. T. H. Jukes, director of chemical research.

The technical department, under the supervision of Dr. Thurston, has been re-named the development department and will continue under his direction.

GRAND OPENING

CARROLL, IOWA—A grand opening was held at the new Chek-R-Mix feed plant recently put into operation by Juergens Produce & Feed Co. Vernis Juergens is owner of the company.

Wifey—I was a fool when I married you.

Hubby—Yes, but I was so infatuated with you that I didn't even notice

◆ ◆ ◆

Four card sharps got together on the train and a tense, hard-fought game ensued. Suddenly, the dealer tossed his cards down and said: "This game is crooked."

"What makes you think so?" queried the card sharp on his left.

"Because that guy isn't playing the same hand I dealt him."

◆ ◆ ◆

A passenger on a sleeping car was badly bitten by bugs. He wrote to the company to complain. Back came a reply. It was, said the letter, the first complaint the company had ever had. Inquiry had failed to reveal any explanation for the unprecedented occurrence. Nevertheless, the stringent precautions taken in the past would be redoubled in the future. Then out of the envelope fell a slip: "Send this guy the bug letter."

◆ ◆ ◆

"I can't understand them," said Mrs. Jones. "They have no car, no television set, and she has no jewelry and no fur coat."

"Perhaps," said Mr. Jones, "they just have money."

◆ ◆ ◆

What a lot of women would like to do with last year's dress is get into it.

◆ ◆ ◆

"Why is Smith pacing up and down in front of his house like that?"

"He's awfully worried about his wife."

"Is that so? What's she got?"

"The car."

◆ ◆ ◆

When the mother found her infant daughter eating handfuls of sand from the sandbox she was frantic. She rushed the child into the house and made her drink lots of water and then called the doctor.

After explaining what had happened and what she had done, she asked the doctor what she should do next.

"Just don't give her any cement," the doctor admonished.

"Shipping once brought me more trouble than profit"

Owner: You know, I never realized how much money SPARINE could make for me. I'd heard about it, but I was always too busy to do anything about it.

Foreman: What I like was the way those steers acted. Jerry told me he's been working steers for thirty years and never saw easier ones to load. I know the boys are glad you called the vet.

Owner: Well, I've got to admit I really wasn't convinced that SPARINE was worth it till they weighed those steers at the feed lot. At the price per hundredweight, cutting that shrink really made me money.

Foreman: I remember last time we got the weight records. You wanted to have the feed lot scales checked. I still can't get over the way those steers went on feed so fast after we unloaded. And I didn't notice a lot of bulling, milling or fence walking.

Injection SPARINE® (promazine hydrochloride, Wyeth) solves most of your cattle shipping problems. It reduces weight losses *by over 50% in most cases.* Treated animals are easier to handle, load, and ship. SPARINE doesn't "knock out" cattle even in transit.

Call your veterinarian now. Ask him about the advantages of SPARINE. Don't wait until your animals are weighed at the feed lot.

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The survey was made by a research organization with access to a nation-wide panel of typical homemakers, including farm women. (The women did not know Bemis sponsored the study.)

We learned what types of florals, plaids, checks, geometrics, etc., are currently popular.* What colors. What color combinations. We learned that women who sew prefer fewer *different* patterns and more bags of the same pattern. We learned how much they sew . . . and what they make from emptied cotton bags (an important guide to us). We learned that dressprint bags can influence the sale of your products.

It was probably the largest, most thorough study of its kind ever made by the bag business.

But what does it mean?

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Convention Calendar

Oct. 6-8 — Northeastern Poultry Producers Council Exposition and Convention; Farm Show Building, Harrisburg, Pa.; chm., Alfred Van Wagenen, 10 Rutgers Place, Trenton 8, N.J.

Oct. 7-9—Texas Nutrition Conference; Texas A&M College, College Station; chm., Dr. J. R. Couch, Department of Poultry Science.

Oct. 8—Fall Feeders Day; North Platte Experiment Station, North Platte; Prof. W. J. Loeffel, Animal Husbandry Dept., University of Nebraska, Lincoln.

Oct. 9—Montana Cattle Feeders Day; Montana State College, Bozeman; Dr. O. O. Thomas, Department of Animal Industry.

Oct. 11-14—Kentucky Poultry Federation and Kentucky Poultry Improvement Assn.; Cumberland Falls State Park, Corbin; sec., John W. Tuttle, 730 Rose St., Lexington, Ky.

Oct. 14—Animal Nutrition Research Council; Shoreham Hotel, Washington, D.C.; sec., Irwin Olcott, Dawe's Laboratories, Inc., 4800 S. Richmond St., Chicago 32, Ill.

Oct. 14-15—Association of American Feed Control Officials; Shoreham Hotel, Washington, D.C.; sec., Bruce Poundstone, Agricultural Experiment Station Bldg., University of Kentucky, Lexington, Ky.

Oct. 15-16—Michigan Feed & Grain Dealers Assn.; Kellogg Center, Michigan State University, East Lansing, Mich.; sec., Nevels Pearson, P.O. Box 472, East Lansing, Mich.

Oct. 19-20—Beef Research Conference (attendance by invitation); Purdue University, Lafayette, Ind.; sponsored by Agricultural Research Institute and National Academy of Sciences-National Research Council; Dr.

New Listings

For the convenience of readers who scan the Convention Calendar regularly for new listings, those added to the column in the current week appear separately from ones which have been entered previously. The following week they will be moved to their proper slot where they will remain until the event is held.

• • •

Oct. 21-22—Nebraska Poultry Improvement Assn.; Hotel Lincoln and Armory (exhibits), Lincoln; chm., Poultry Husbandry Bldg., University of Nebraska, Lincoln.

Oct. 22-23—Washington Poultrymen's Institute; Washington State University, Pullman.

Oct. 29-30—Washington Poultry and Hatchery Assn.; Ben Franklin Hotel, Seattle.

Dec. 7-11—Washington Stockmen's Short Course; Washington State University, Pullman.

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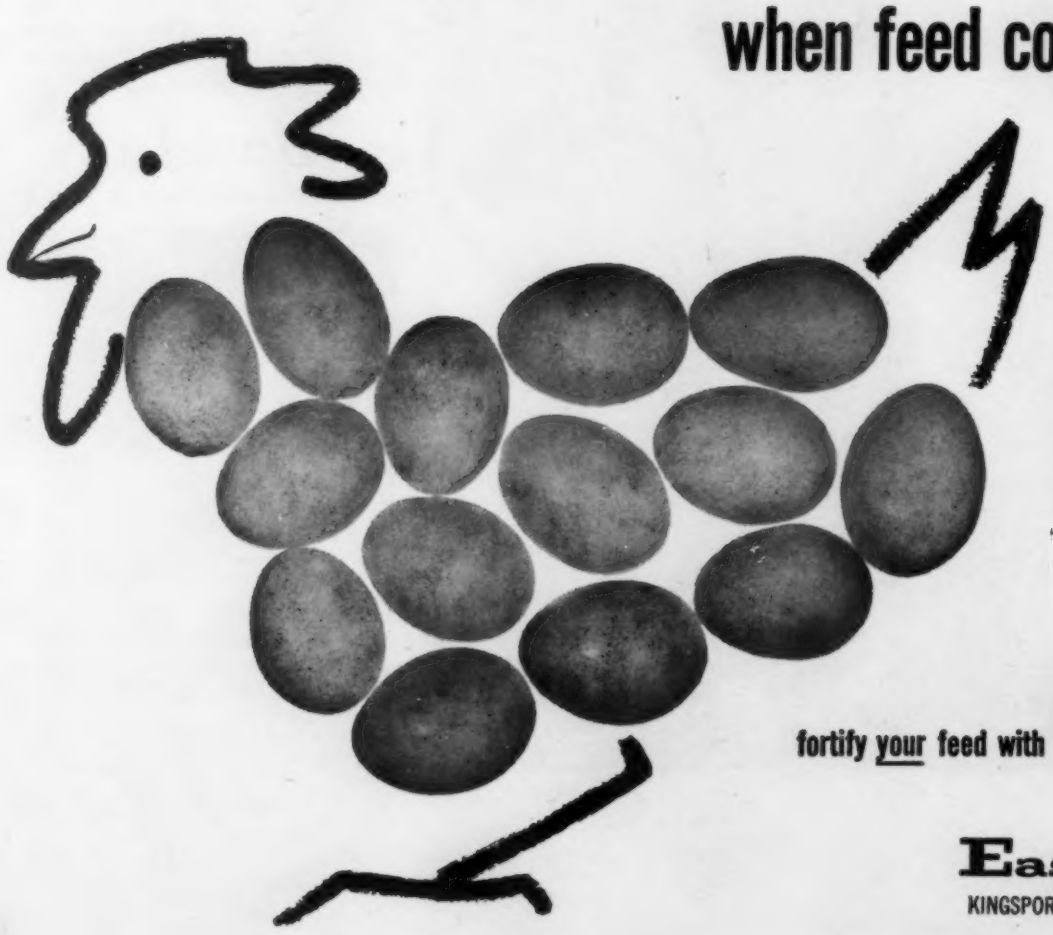

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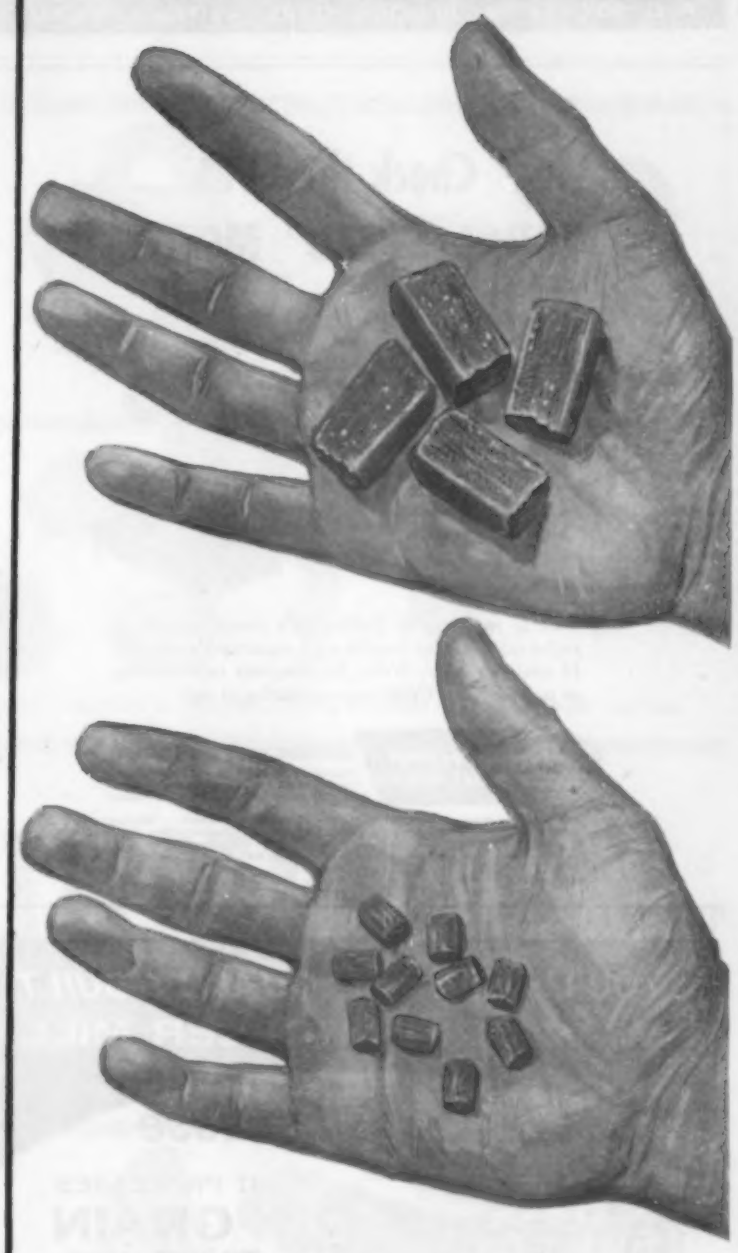

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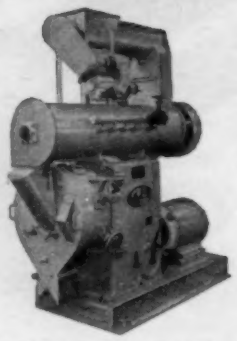

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This is just one of California's complete line of pellet mills. Other models with capacities from 1 to 15 tons per hour. Write for complete information, or ask for your CPM representative to call.

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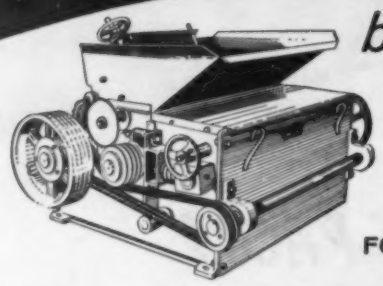

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4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

NOVEMBER

S	M	T	W	T	F	S
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C. B. Cox, Agricultural Economics Department, Purdue University.

Oct. 19-20—California Animal Industry Conference; Fresno Memorial Auditorium, Fresno, Cal.; sponsored by California Hay, Grain & Feed Dealers Assn. and University of California; chm., Berton Maxwell, Poultry Producers of Central California, Petaluma.

Oct. 20-21—Virginia State Poultry Federation; Hotel John Marshall, Richmond, Va.; sec., J. Paul Williams, 615 E. Franklin St., Richmond 19, Va.

Oct. 21—North Dakota Swine Day; North Dakota Agricultural College, Fargo; M. L. Buchanan, Chief, Division of Animal Industry.

Oct. 22 — North Dakota Turkey Federation; American Legion Hall, Cooperstown; sec., Irving J. Mork, Department of Poultry Husbandry, North Dakota Agricultural College, State College Station, Fargo.

Oct. 22-23 — Annual Stockholders Meeting, Cooperative G.L.F. Exchange, Inc., Onondago County War Memorial Building, Syracuse, N.Y.

Oct. 22-23—Iowa Seed Dealers Assn.; Savery Hotel, Des Moines; sec., Bob Skinner, 928 Des Moines Bldg., Des Moines 9, Iowa.

Oct. 23—Arkansas Poultry Study Day; University of Arkansas, Fayetteville; Prof. Robert M. Smith, Department of Animal Industry and Veterinary Science.

Oct. 27-28—Indiana State Poultry Assn.; Hotel Severin, Indianapolis; sec., Robert L. Hogue, Poultry Science Bldg., Purdue University, Lafayette, Ind.

Oct. 29—Nebraska Feed & Nutrition Conference; University of Nebraska, Lincoln; chm., Dr. John Adams, Poultry Husbandry Department.

Oct. 29-30—West Virginia Feed Dealers Assn.; Blackwater Falls Lodge, Davis; sec., J. S. Larrick, Beckley Ice & Feed, Beckley, W. Va.

Oct. 30—Rooters Day; University of Nebraska, Lincoln; Dr. E. R. Peo, Animal Husbandry Department.

Oct. 30—Illinois Sheep Producers Day; University of Illinois, Urbana; chm., Dr. U. S. Garrigus, Department of Animal Science.

Nov. 1-4—Mississippi Poultry Improvement Assn., Biloxi; Dean & Director, Division of Agriculture, Mississippi State University, State College, Miss.

Nov. 4-5—Kansas Poultry Assn.; Broadview Hotel, Wichita; sec., Harry J. Reed, Box 663, Manhattan, Kansas.

Nov. 4-5—Illinois Feed Assn. and Illinois Poultry Improvement Assn., joint convention; Armory, Springfield, Ill.; IFA, Leland Hotel; sec., Dean M. Clark, Board of Trade Bldg., Chicago; IPIA, St. Nicholas Hotel; sec., Aubrey Harless, Box 91, Shelbyville, Ill.

Nov. 4-7 — National Renderers Assn., Hollywood Beach Hotel, Hollywood Beach, Fla.; sec., Miss Jamie Fox, 30 N. La Salle St., Chicago 2, Illinois.

Nov. 5-6—Florida Nutrition Conference; Medical Center Auditorium, University of Florida, Gainesville; sponsored by Florida Feed Dealers Assn. and Florida Agricultural Experiment Station; chm., Dr. J. P. Feaster, Department of Animal Husbandry and Nutrition.

Nov. 6-7—Oklahoma Formula Feed Conference; Oklahoma State University, Stillwater; chm., Dr. Rollin H. Thayer, Poultry Science Department. Jackson Blvd., Chicago 4, Ill.

Nov. 12-13—Cornell Nutrition Conference; Hotel Statler, Buffalo, N.Y.; chm., Dr. F. W. Hill, Poultry Husbandry Dept., Cornell University, Ithaca, N.Y.

Nov. 11-13—Cornell Nutrition Conference; Hotel Statler, Buffalo, N.Y.; chm., Dr. M. L. Scott, Poultry Husbandry Department, New York State College of Agriculture, Cornell University, Ithaca, N.Y.

Nov. 13-14 — Oregon Sheep and Wool Days, Oregon State College, Corvallis; chm., Dr. C. W. Fox, Dairy & Animal Husbandry Dept.

Nov. 16—North Dakota Sheep Day; North Dakota Agricultural College, Fargo; M. L. Buchanan, Chief, Division of Animal Industry.

Nov. 16—Tennessee Feed Manufacturers Assn., Claridge Hotel, Memphis, Tenn.; sec., Charles H. Warfield, American Trust Bldg., Nashville, Tenn.

Nov. 16-17—Washington Animal Industry Conference; Yakima Junior College, Yakima, Wash.; John G. Wilson, Washington State Feed Assn., Inc., 814 Second Avenue Bldg., Seattle 4.

Nov. 18—School for Poultry Servicemen; University of New Jersey, Agricultural Experiment Station, New Brunswick; chm., R. L. Squibb, Department of Poultry Science.

Nov. 19-20—National Swine Industry Conference; Iowa State University, Ames; chm., Keith Myers, National Swine Growers Council, Grundy Center, Iowa.

Nov. 21—Missouri Sheep Day, University of Missouri, College of Agriculture, Columbia; C. V. Ross, Department of Animal Husbandry.

Nov. 22-24—Western Grain & Feed Assn. of Iowa; Fort Des Moines Hotel, Des Moines, Iowa; sec., Bob Skinner, 928 Des Moines Bldg., Des Moines 9, Iowa.

Nov. 23-25—Alabama Animal Nutri-

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tion and Management Conference; Duncan Hall, Alabama Polytechnic Institute, Auburn; sponsored by Alabama Feed Assn., sec., Merlin Bryant, Brundidge Milling Co., Inc., Brundidge, Alabama.

Nov. 27-28—American Society of Animal Production; Sherman Hotel, Chicago, Ill.; sec., Dr. H. H. Stonaker, Colorado State University, Ft. Collins, Colo.

Nov. 30-Dec. 1—Midwest Veterinary Nutrition Conference; President Hotel, Kansas City; sec., Lloyd Larson, Midwest Feed Manufacturers Assn., 20 W. 9th Street Bldg., Kansas City 5, Mo.

Dec. 2—Ontario Retail Feed Dealers Association; King Edward Sheraton Hotel, Toronto; sec., Murray McPhail, 69 Yonge Street, Toronto.

Dec. 3-4—North Carolina Animal Nutrition Conference; North Carolina State College, School of Agriculture, Raleigh; chm., E. R. Barrick, Head, Animal Husbandry Section.

Dec. 4-5 — Arkansas Turkey Convention and Show; Berryville, Arkansas; sec., Charles D. Hawks, P. O. Box 1446, Little Rock.

Dec. 7-9—Minnesota Poultry Assn., Radisson Hotel, Minneapolis; sec., L. L. Baumgartner, Litchfield, Minn.

Dec. 8-9 — Poultrymen's Service Clinic; Cornell University, Ithaca, N.Y.

1960

Jan. 4-5—Kansas Formula Feed Conference; Kansas State University, Manhattan, Kansas.

Jan. 4-8 — Retail Feed Dealers Training School; University of Minnesota, St. Paul; Dr. J. O. Christianson, Director of Agricultural Short Courses, Institute of Agriculture, St. Paul 1.

Jan. 5-7—National Turkey Federation; Hotel Leamington, Minneapolis; sec., M. C. Small, P.O. Box 69, Mt. Morris, Ill.

Jan. 17-19—Indiana Grain & Feed Dealers Assn.; Claypool Hotel, Indianapolis, Ind.; sec., Fred K. Sale, 600 Board of Trade Building, Indianapolis, 4, Ind.

Jan. 25-27 — Southeastern Poultry & Egg Assn.; Municipal Auditorium, Atlanta, Ga.; sec. Harold E. Ford, 235 E. Ponce de Leon Ave., Decatur, Ga.

Feb. 2-4 — American Dehydrators Assn.; Broadmoor Hotel, Colorado Springs; exec. vice pres., Joseph Chrisman, 430 Board of Trade Bldg., Kansas City 5, Mo.

Feb. 4-5—Oregon Animal Industry Conference; Oregon State College, Corvallis, Ore.; chm., Dr. J. E. Parker, Poultry Husbandry Department.

Feb. 8-9—Montana Nutrition Conference; Montana State College, Bozeman; chm., Dr. O. O. Thomas, Animal Industry Dept.

Feb. 8-9—Midwest Feed Manufacturers Assn.; Muehlebach Hotel, Kansas City; exec. vice pres., Lloyd Larson, 20 W. 9th St. Bldg. Kansas City 5, Mo.

Feb. 10-11—Pacific Northwest Feed Mill Production School; Chinook Hotel, Yakima, Wash.; sponsored by Washington State Feed Assn., mgr., John G. Wilson, 814 Second Ave. Bldg., Seattle 4, Wash.

Feb. 11—Boston Grain and Flour Exchange Annual Banquet; Sheraton-Plaza Hotel, Boston; chm., Paul Sutliff, 177 Milk St., Boston, Mass.

Feb. 12—Washington State Feed Assn.; Chinook Hotel, Yakima, Wash.; annual convention; mgr., John G. Wilson, 814 Second Ave. Bldg., Seattle 4, Wash.

Feb. 12-14—Fact Finding Conference, sponsored by the Institute of American Poultry Industries; Municipal Auditorium, Kansas City, Mo.; pres., Harold M. Williams, 59 East Madison, Chicago, Ill.

Feb. 21-23—Ohio Grain & Feed Dealers Assn.; Commodore Perry Hotel, Toledo; sec., G. E. O'Brien, 694 N. Ohio Street, Greenville, Ohio.

Feb. 23-24—Virginia Feed & Nu-

NEW WAY TO MARKET EGGS IN FOOD STORES!

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Triumph No. 1200 Corn Shelling Systems; 40 to 50 Tons Per Hour.

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Triumph Designed Valves, Distributors, Spouting, and Elbows for Grain Spouts and Cob Pipes.

Engineered for efficient, dependable, low cost operation

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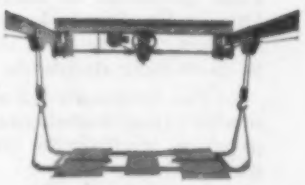

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THREE-STEP HOOK UP—Following a three-step procedure, a demonstrator quickly hooks up a pneumatic unloader to one of the new covered hopper cars manufactured by American Car & Foundry Division, ACF Industries, Inc. He unscrews the unloading cap, opens the air inlet and inserts the suction hose to compelete the operation. This feature of ACF's "Ship-O-Matic" pneumatic hopper was demonstrated at the Allied Railway Supply Assn. show in Chicago Sept. 20-23. The "Ship-O-Matic" cars, which also can be gravity unloaded, are being built by ACF for the movement of dry, granular or powdered chemicals and food products.

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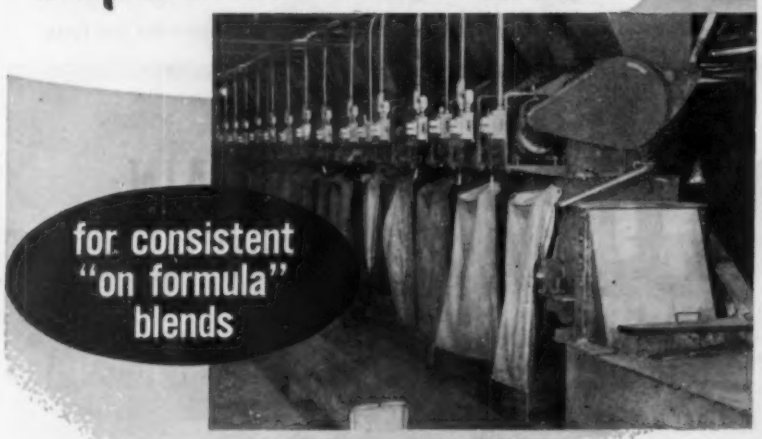
Depend on DRAVERS



for consistent "on formula" blends

Like hundreds of other mills, this feed plant depends on Draver Feeders to keep their blends on formula, at low per-ton cost. Day by day, and year after year, Dravers continue to meet their standards.

The trade-proved accuracy of Draver Feeders, and the positive mechanical control of the Continuous Mixing System produce *consistently* uniform blends. Labor and power requirements are low . . . and downtime for maintenance and repairs on sturdy Draver Feeders is almost nil.

For mixing continuously to exacting formula specifications—whether flour or feeds—you, too, will be wise to depend on Dravers. The complete line includes models for feeding as little as ½ ounce per minute of premix ingredients and concentrates, as well as the large Wing-Type Feeders with capacities up to 2000 cubic feet per hour. Ask our experienced engineers for complete details and recommendations, without obligation.

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trition Conference; Hotel Roanoke, Roanoke; J. Paul Williams, sec., Virginia State Feed Assn., 615 E. Franklin St., Richmond, Va., or Prof. Paul M. Reaves, Department of Dairy Science, Virginia Polytechnic Institute, Blacksburg, Va.

March 7-8—Grain & Feed Dealers National Assn.; Hotel Muehlebach, Kansas City; sec., Herbert L. Sharp, 400 Folger Bldg., Washington 5, D.C.

March 17-18—Oregon Feed & Seed Dealers Assn.; New Sheraton Hotel, Portland, Ore.; mgr., Russ Hays, 702 Lewis Bldg., Portland, Ore.

Mar. 17-18—Maryland Nutrition Conference; Shoreham Hotel, Washington, D. C.; chm., Richard D. Creek, University of Maryland, Department of Poultry Husbandry, College Park.

March 23—Distillers Feed Conference; Sheraton Gibson Hotel, Cincinnati; sponsored by Distillers Feed Research Council; exec. director, Dr. Lawrence E. Carpenter, 1232 Enquirer Bldg., Cincinnati, Ohio.

April 1-2—Texas Grain & Feed Assn., Shamrock Hotel, Houston; sec., Ray B. Bowden, 407 Fort Worth Club Bldg., Ft. Worth 2, Texas.

April 5-7—Nebraska Grain & Feed Dealers Assn.; Pershing Municipal Auditorium, Lincoln; sec., Howard W. Elm, Trust Bldg., Lincoln, Neb.

April 11-13—Poultry and Egg National Board, LaSalle Hotel, Chicago, Ill.; mgr., Floyd Gell, 8 S. Michigan Ave., Chicago 13, Ill.

April 21-23—California Hay, Grain & Feed Dealers Assn., Ambassador Hotel, Los Angeles; sec., John Gilmore, Blue Anchor Bldg., 1400 10th St., Sacramento 14, Cal.

April 21-23—Kansas Grain & Feed Dealers Association; Broadview Hotel, Wichita, Kansas; sec., Orris E. Case, 609 Wiley Bldg., Hutchinson, Kansas.

April 22 — Nebraska Livestock Feeders Day; University of Nebraska, College of Agriculture, Lincoln; chm., Wm. J. Loeffel, Animal Husbandry Dept., Lincoln 3, Neb.

May 1-4—National Fisheries Institute; Hotel Fontainebleau, Miami Beach, Fla.; asst. gen. mgr., Mal Xavier, 1614 20th St. N.W., Washington 9, D.C.

May 9-11—American Feed Manufacturers Assn.; Conrad Hilton Hotel, Chicago; sec., W. T. Diamond, 53 W. Jackson Blvd., Chicago 4, Ill.

June 14-15—Alabama Poultry Industry Assn.; Municipal Auditorium (Exhibits) and Thomas-Jefferson Hotel, Birmingham, Ala.; sec., W. L. Walsh, Box 567, Montgomery.

MILL DESTROYED

OGDEN, UTAH—A lightning-caused fire destroyed the Ogden (Utah) Alfalfa Mills recently. Damage to the mill, owned by Clyde W. Ferrin, was estimated at $50,000.

5% Business Increase Goal of Wayne Feeds

CHICAGO—A 5% increase in business during 1959-60 over the previous year has been set as a goal for Wayne Feeds by Elmer Lenz, president, Allied Mills, Inc.

A recent issue of Wayn-E-Gram, published for Wayne dealers and salesmen, reports that Mr. Lenz believes this goal to be realistic because of livestock populations being at an all-time high. "Less favorable feeding ratios in many important areas, however, mean increased sales resistance and the necessity for intelligent planning and considerable energy," Mr. Lenz added.

Directing his remarks to salesmen and dealers, he commented, "You can do your customers a real service by doing a better job of selling than ever before. With lower prices for their products, they cannot afford to slight on good feeding, however great the temptation to do so. . . . If the feeder has a chance of making a profit at all, it's even more essential to follow a sound feeding program when prices are lower than when they are high."

The company publication notes that Wayne Feeds closed the 1958-59 fiscal year with a new all-time record tonnage — 12% above last year's previous all-time high. "Wayne dealers and salesmen thus exceeded by a comfortable margin the 10% challenge given them at the start of the fiscal year by President Lenz," the publication said.

NEW MOBILE MILL SERVICE

LANGFORD, S.D. — The Likness Bros. Elevator at Langford will soon put into service a new mobile feed unit, made by the Daffin Manufacturing Co. The unit will grind farm-grown grains and roughages according to the farmers' specifications, mix the ground material with feed concentrates and blend in fresh liquid molasses.

N. K. Parrish

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Oscar Rueckert has built his prosperous business on a foundation of service.

"We add services to help farm folks in our market"

—*says* OSCAR RUECKERT,
Vernon Center Feed Service,
Vernon Center, Minnesota

"When we began selling Purina Chows nine years ago, we considered feeds as a side line," says Mr. Rueckert, "but we soon learned that we could be of greater service to the community by devoting full time to our Purina Service Center; so we disposed of our other business."

Mr. Rueckert believes that service is the most important function of business. Therefore, he has added services as needed by the farming community. For example, farmers wanted proof that hogs can be raised more successfully on concrete; so Mr. Rueckert built a "Pig Parlor" with an annual capacity of 500 hogs. He put in a "commercial-size" cattle demonstration . . . installed scales for customers' convenience.

His hog and cattle weighing service has helped farmers get actual production costs, and the addition of Check-R-Mix service has helped farmers feed home-grown grain more efficiently.

Service to farm folks has brought growth to Vernon Center Feed Service. The service center's Purina volume this year is more than seventeen times what it was the first twelve months that the service center was in operation.

Vernon Center Feed Service weighs stock to help farm youths watch the progress of their club projects. In this picture, Service Center Employee Gordon Kopischke (right) weighs a club calf for Dean Thurston while Dean's father looks on.

Raymond Kelley (left) has his home-grown grain Check-R-Mixed for his thousand chickens. "I get good results and good service," he comments to Mill Operator Ernest Brandts.

To prove the value of "Pig Parlors," Mr. Rueckert operates one on a "commercial scale." This unit can turn out 500 hogs a year.

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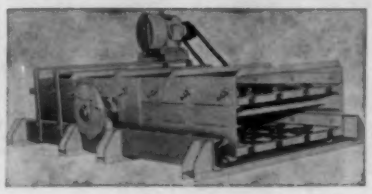
No. 7670—Hog Production Record

American Cyanamid Co. has designed a Cyanamid Production Accounting Record which the company believes will help hog farmers evaluate and improve the efficiency of their operations. The system consists of a 9 in. by 14 in. folder with pockets for keeping feed, veterinary and miscellaneous bills, and sales receipts. It also provides space for recording all stages of production and helps the farmer figure net returns quickly and accurately, the company says. The system was designed to be equally useful to the producer of feeder pigs, market hogs or for farmers with a complete swine operation. For more information about the record check No. 7670 on the coupon and mail.

No. 7669—Vibrating Screen

The Triumph Division of the C. O. Bartlett & Snow Co. has announced the introduction of a "Conveyor Action Vibrating Screen." The unit will



screen all common grain and feed products, and most feed ingredients, at a high rate per square foot of screening area, without blinding, the company said. All kinds of products, including corn, corn cobs, oats, pellets, molasses feeds and others can be handled on wire screen cloth without wedging, building up or plugging the open spaces. Screening is accomplished with the deck of the screen set horizontal plus 3° to minus 8° depending upon the separation desired, thus minimizing the head room required. The conveyor action removes tags, strings, paper and other foreign material from feed; also wood, stone, tramp iron and cobs from grain during scalping. The vibrating action cuts particles down through the bed of material, or conveys them on, depending upon the relationship of the particle size to the size of the screen opening. The screens maintain a live fluid bed of material so that all fines work down and through the screen cloth. Even the lightest fines such as beeswings in corn, oat hulls, or floor sweepings can be cut through the screen cloth and removed, the company said. The screens are available in a wide range of sizes including 24 in. by 48 in., 36 in. by 72 in., 42 in. by 96 in. and 48 in. by 96 in. Single, double and triple deck designs are available, the company said. For details, check No. 7669 on the coupon and mail.

No. 7673—Egg Business Record

A business record for cage operators, with explanatory notes, has been announced by Pockman Manufacturing Co. The book is divided into two main parts. One part contains the dollars and cents portion—a record of all income and expenses, including the record of the capital investment for depreciation and the individual earnings record

for employees, needed for social security purposes. The other part contains space for the data which will allow the operator to keep in touch with what goes on in his cage plant—how many birds he has, daily output of eggs, daily feed consumption and all other pertinent facts, the company said. The book is 10 in. by 13½ in., containing page fillers for one year's record. For further information check No. 7673 on the coupon and mail to this publication.

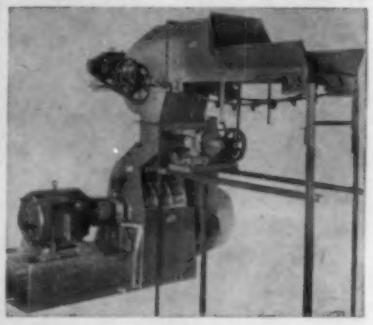
No. 7672—Indicator Unit

Remote indication of both batch and cumulative weights is given in a unit introduced by Richardson Scale Co. The unit combines indicator and single unit totalizer. Totalizer records cumulative weight in pounds either of a single ingredient or, when used in a proportioning system, of a combination of ingredients. Output during any hour, shift or day may be read directly on the totalizer-counter. The indicator pointer, remote from the dial scale, follows the dial scale pointer movement. As the indicator pointer rotates, the counter is driven through an electric clutch

and suitable gearing to totalize pounds of material. When the dial scale returns to "zero" position, the pointer on the indicator also returns to the zero position, but the counter remains at the accumulated weight. The counter can have a graduated units wheel, one or more dormant zeros, or a decimal point, depending on the capacity and readability desired. The standard counter contains six digits and has a reset feature. The indicator-totalizer is available with its own dust-tight enclosure. For more information check No. 7672 on the coupon and mail.

No. 7674—Shredder-Hammermill

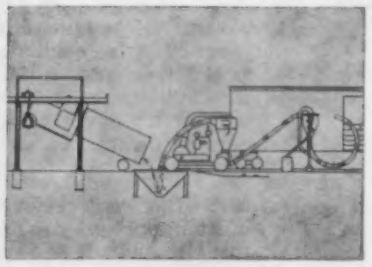
Now available from Jacobson Machine Works, Inc., is a high capacity unit combining a "Baled Hay Shredder" with the Jacobson "Ajacs Hammermill." Extensive testing in hay-grain pelleting plants has indicated that it is an excellent solution to a long-felt need, company literature said. A variable speed feed table, controlled automatically by use of an electric trip relay, feeds baled



hay into the shredder, which reduces the bales sufficiently for most grinding by the hammermill. At the same time, small grains are fed into the hammermill through a rotary feeder air syphon separator. Both materials pass over heavy duty permanent magnetic separators. Dust loss is minimized by use of the company's recirculating collector, it was noted, and by grinding the hay and grain together. For more information check No. 7674 on the coupon and mail.

No. 7671—Grain Handling System

A system for handling grain—the "Rapid-Ceve"—has been introduced by Dunbar Kapple, Inc. Designed for fast unloading of trucks and loading into boxcars, trailer trucks, buildings and bins, the system will clean and convey grain in one operation, company literature said. It consists of four basic parts: a truck lift, an all-steel hopper type sink, a standard



Dunbar Kapple Vac-U-Vator and a mobile grain cleaner. A foreign material receptacle and ductwork complete the system. The sink is partially sunk into the ground and is topped by a grated drive-over bridge. Trucks drive across the grating and stop at the truck lift. Slings are attached to the front wheels of the truck and the front end of the truck

Send me information on the items marked:

- ☐ No. 7669—Vibrating Screen
- ☐ No. 7670—Hog Production Record
- ☐ No. 7671—Grain Handling System
- ☐ No. 7672—Indicator Unit
- ☐ No. 7673—Egg Business Record
- ☐ No. 7674—Shredder-Hammermill

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is hoisted, allowing the grain to flow out of the truck bed into the sink. Grain falls through the grating into an opening in the bottom of the sink. The Vac-U-Vator then sucks the grain out of the sink through a high speed connection. The grain is conveyed through the Vac-U-Vator. All movement of grain is done by air. The Vac-U-Vator is equipped with engine-driven compressor. Any one of the company's units can be used with the system. For more information check No. 7671 on the coupon and mail to this publication.

Also Available

The following new products have been described in previous issues of Feedstuffs and information about them may still be obtained by jotting the appropriate number on the coupon and forwarding it to Feedstuffs.

No. 7623 — Dual motor vibrator, Cleveland Vibrator Co.

No. 7624 — Conversion truck unit, Ripco Air Systems.

No. 7625—Equipment catalog, the Bauer Bros. Co.

No. 7626—Crusher bulletin, Metals Disintegrating Co., Inc.

No. 7627 — Drag plate conveyor, Strong-Scott Manufacturing Co.

No. 7628 — Dairyman's Promotion, Hess & Clark.

No. 7629—Moisture barrier, Knott Chemical Co.

No. 7631 — Handle bag, Hudson Pulp & Paper Corp.

No. 7632—Automatic batching control, Toledo Scale Corp.

No. 7633—Vibration inducer, Martin Engineering Co.

No. 7634—Pig raising information, Chore Boy Manufacturing Co., Inc.

No. 7635—Mastitis ointment, Merck & Co., Inc.

No. 7646—Impact mill, Safety Industries, Entoleter Division.

No. 7647—Grain storage building, Stran-Steel Corp.

No. 7648—Grain cleaner, Superior Co.

No. 7649—"New Leader" spreader, Highway Equipment Co.

No. 7650—New package size, Hess & Clark.

No. 7651—Boiler bulletin, Superior Boiler Works.

No. 7652—Feed grinder bulletin, Gruendler Crusher & Pulverizer Co.

No. 7653—Cattle cobalt bullet, Nichols of America Ltd.

No. 7654—Feed body options, Gaddis Brothers Manufacturing Co., Inc.

No. 7655—Hydraulic mobile mill, Iowa Portable Mill.

No. 7656—Sales letter booklet, Gladwin A. Read Co.

No. 7657—Belt joining booklet, Imperial Belting Co.

No. 7658—New control unit, Hot Spot Detector, Inc.

No. 7659—Bulk feed handler, Dodgen Industries.

No. 7660—Lamb hormones, Chas. Pfizer & Co., Inc.

No. 7661—Bulk feed body, Gaddis Bros. Manufacturing Co., Inc.

No. 7662—Fly maggot control, Allied Chemical.

No. 7663—New hopper, Richardson Scale Co.

No. 7664—Vitamin products, Merck & Co., Inc.

No. 7665—Pneumatic conveying data, Sprout, Waldron & Co., Inc.

No. 7666—Continuous voltage stabilizer, Hot Spot Detector, Inc.

No. 7667—Electric vibrators, Cleveland Vibrator Co.

No. 7668—Mobile air unit, Ripco Air Systems, Inc.

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Says Carl Woizeski, General Manager of Larsen Co-operative Co., Larsen, Wisconsin.

Carl Woizeski, above, manages the Larsen Co-operative Co. and employs eight men in the feed department.

Three Strong-Scott Triple Action Mixers are mounted overhead. A screw conveyor carries material out for bulk discharge into trucks.

The Strong-Scott Quick-Change Hammermill is the answer to the grinding needs at Larsen.

"We are presently operating four Strong-Scott Triple Action Mixers, a 5-ton, two 2-ton and a 1-ton, plus one molasses mixer," says Carl. "These do a good job of mixing and I guess the fact that our customers are well satisfied bears this out.

"We can run 12 ton an hour in our Strong-Scott Molasses Mixer and get excellent results. Maintenance on our Strong-Scott equipment is almost nil. In the one year we have had our Strong-Scott Hammermill, we have never had to change a screen. They are wonderful," concluded Carl. The contractor at Larsen, recently completing the newest addition, was A. Winterfeldt.

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Minnesota Egg, Broiler Integration Described in Series

MINNEAPOLIS—How vertical integration has entered broiler and egg production and other agricultural enterprises in Minnesota was described recently in a Minneapolis Star newspaper series written by Humphrey Doermann, staff writer.

The Star series reported how Minnesota's agriculture is reacting to large companies and cooperatives in the South "harnessing the new technology of broiler production with management and capital" to dominate the national broiler market. The series also discussed the concern some Minnesota farmers apparently have about the possibility that they may have to bow out of producing eggs.

The Minneapolis Star reported that Ernie Lack, a former Minneapolis food broker who had never grown a chicken in his life, now controls the growing, processing and wholesaling of 200,000 broilers in the Bethel, Minn., area. And, if his plans for expansion develop, he will have roughly a million broilers on feed at one time by next spring. His production target is about 5 million birds a year—almost double the state's recent average broiler output of approximately 2.7 million.

Mr. Doermann reported that Mr. Lack built his broiler processing plant, using his own funds plus "substantial" aid provided by Ralston Purina Co., St. Louis. Twenty-five growers raised the necessary $50,000 to build houses to accommodate the broilers.

Growers in Mr. Lack's enterprise get their chicks from Jack Frost Hatcheries, St. Cloud. Ralston Purina provides the feed, management and veterinary advice. Mr. Lack processes and markets the birds.

As reported by the Minneapolis Star, Mr. Lack guarantees the growers a price based on the Georgia live weight market, but has specified that the base will not fall below 18¢ even when the market does. Any losses are split three ways among Mr. Lack, Jack Frost Hatcheries and Ralston Purina Co. The grower's contract is for 12 months.

"A good grower should be able to make 10¢ a bird," Mr. Lack said to the newspaper writer. "If he turns out 200,000 birds a year, that means a $20,000 gross income—from which he deducts cost of heat and litter for the birds . . . "

Mr. Lack noted that his early months of operation have been "in the black." He hopes to use Minnesota's transportation and feed cost advantages to earn good profits for himself and his growers in the broiler business.

To meet the challenge of efficiency in operation and providing fresh eggs of uniform quality, Emil Ihrke, Windom, Minn., farmer has joined the quality egg program of Land O'Lakes Creameries, Inc.

The Minneapolis Star reported that Mr. Ihrke used to keep 350-400 hens, but now he has humidity and temperature controlled housing for 2,000 layers.

And he has agreed with Land O'Lakes to:

1. Collect eggs several times a day.
2. Clean the eggs, using a buffer wheel if necessary.
3. Store them in a cooler, which he bought from Land O'Lakes.
4. Feed Land O'Lakes feed exclusively.
5. Replace his flock on a staggered basis to maintain relatively steady production from young birds.

For keeping his part of the bargain, Mr. Ihrke receives from the Land O'Lakes Cooperative the best market price available, which has been running about 4-5¢ doz. above the local market.

It was noted that Land O'Lakes maintains a full-time field man who gives management advice, provides initial credit screening and sells the program to new growers. The co-op will finance feed and pullets, but not buildings. However, it really prefers to have everything handled by a local bank or the Production Credit Assn.

Egg producers in the Land O'Lakes program own their houses, their hens and take for themselves all of the profits (or losses) in the production operation.

Loans Approved for Feed and Grain Firms

WASHINGTON — Small business loans were approved for 15 feed, grain and related firms during August, according to Wendell B. Barnes, administrator of the Small Businesss Administration.

Loans approved follow: Troy (Ala.) Milling Co., $17,500, feed mill; Holleman Seed Service Co., Wynne, Ark., $65,000, seed dealer; Stallings Brothers Feed Mills, Morrilton, Ark., $69,000, grain elevator; Farmers Elevator, Inc., Storm Lake, Iowa, $100,000, grain elevator, and Art's-Way Manufacturing Co., Inc., Armstrong, Iowa, $50,000, manufacturing feed mixers.

Circle B Feed & Supply, Concordia, Kansas, $15,000, feed mill; White & White, Inc., Mer Rouge, La., $135,000, feed mill; F&M Metalcraft Manufacturing Co., Detroit, Mich., $33,000, manufacturing seed; Windom (Minn.) Seed Co., $20,000, retail feed and seed; Willmar (Minn.) Grain Terminal, Inc., $160,000, grain storage; Houston Feed Co., St. Joseph, Mo., $14,000, feed and farm supplies; King Bros. Farm Center, Ayden, N.C., $30,000, feed mill; Agri-Tec Steel Corp., Johnstown, Ohio, $75,000, manufacturing grain drying equipment; Adrian (Ore.) Feed Co., Inc., $75,000, seed and feed, and Anderson Elevator, Alcester, S.D., $35,000, grain business.

MILL BEING REMODELED

SCOBEY, MONT.—Orville Nash, Nash Bros. Feed & Grain Co. at Scobey (formerly the Marquis Mill), reports that work is progressing satisfactorily on the mill remodeling and preparations for installation of the new pelleting and steam rolling equipment. He said the complete operation will be in service on or before Oct. 15.

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A WEEKLY NEWSPAPER
For the Feed Manufacturer, Feed Jobber Feed Broker and Feed Dealer

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Minnesota Linseed Meal... Naturally!

a part of the ration.
The 21 Angus steers marketed by Max Heneke, Jackson county, Iowa, Wednesday averaged 1262 lbs and brought $31.
Arthur Bell, Hancock county, was on the market Wednesday with 33 steers. Thirty head averaged 1229 lbs and brought $31.50, while three lighter ones averaged 975 lbs and sold at $29. Just three weeks before Mr. Bell was in with 20 head of the same batch of cattle that averaged 1125 lbs and sold at $31.75. Linseed meal was used in the finishing ration.
Kent PIG NUGGETS for a faster start healthier pigs!—Adv.
Do you like molasses in your rations? No muss, fuss, or waste with NEW Econolass, mfd. by C-K Process-

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Pellet Feeding Study Reported

TIFTON, GA.—Results of cattle feeding research and a description of a feeding operation of the Church of the Latter Day Saints were presented recently at a short course on "Feeding Steers for Profit" at Abraham Baldwin Agricultural College.

Dr. D. W. Beardsley and Dr. W. C. McCormick presented progress reports which seemed to indicate that it is not feasible to pellet a high concentrate ration, but that high pelleted roughage can be profitably fed to fattening cattle.

Another test indicated the average daily gains of steers on grazing for part of the grazing and feeding period are better than that of steers fed in dry lot.

Another test showed that weanling calves can be placed in dry lot at weaning and fed to a desirable grade and weight in specified lengths of time (196 days).

Still another test indicated, in a program of oats and rye pastures for fattening steers, that best performance was obtained from steers on the early-late oats mixtures, and the poorest results were from steers on rye.

It was emphasized that these are progress reports and that definite conclusions will not be established until more tests have been made.

Deseret Farms

E. J. Morgan, manager of Deseret Farms at DeSoto, explained the feeding setup operated by the Church of the Latter Day Saints.

He said the operators are well pleased with the operation in Georgia and that various methods are being tried out for handling and feeding the 7,000 to 11,000 head of cattle on hand there for feeding at all times.

Mr. Morgan said a number of problems had been encountered, like mud and hot sunshine on the feeding grounds, but that these problems are being solved. Deseret Farms buys cattle locally, but brings most of the output from the cattle producing ranch at Orlando.

Mr. Morgan said the cattle are fattened mostly on corn, cottonseed meal, cottonseed hulls and some hay. He said some cattle are fattened on the pastures, but are brought in for dry lot feeding before marketing in order to get the white fat desired by the housewives.

Starts Egg Production

SEARCY, ARK.—With a large percentage of its hens now in production, the egg program started by Doyle Kelso, Purina feed dealer, in the Searcy area several months ago is now marketing eggs through the T. P. Earnest Egg Co., Holland, and F. E. Johnston, North Little Rock. In addition, a portion of the Kelso's fresh egg production goes directly to grocery stores.

Mr. Kelso has nine laying flocks totaling 25,000 H&N hens. They range in size from 2,000 to 4,000 hens.

REPEAT CUSTOMERS PROVE . . . THE
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DOES A BETTER JOB—LONGER!

For mineral and salt feeding. It's portable, durable—all steel corrosion-protected! For details regarding dealerships write . . .

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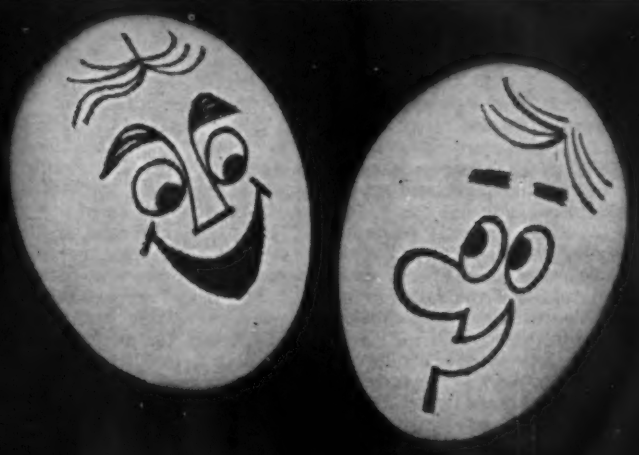


Q. Been traveling? A. Yup.

Q. Where? A. St. Louis, Indianapolis, Asheville, N. C., Harrisburg, Pa.

Q. Conventions? A. Yup. Poultry.

Q. How's it goin'? A. WOW!!!

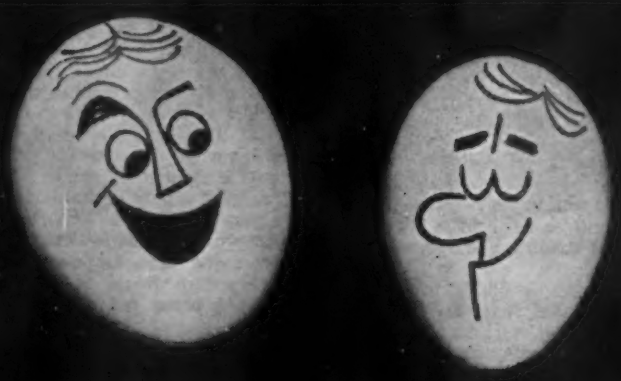
Q. Really that good? A. Better.

Q. What's exciting? A. Golden Goodness of Eggs.

Q. What's that? A. New egg-promoting idea from Hess & Clark.

Q. The folks who sell nf-180? A. Best feed medication you can buy!

Q. So tell me about traveling. A. They loved us.



Q. Us? A. Thousands of dozens of us . . . hard-cooked. Everyone was eating eggs.

Q. Golden good? A. That's just what everyone said. Even on Dave Garroway's *Today* show.

Q. Television? A. . . . *and* radio . . . *and* newspapers . . . *and* billboards.

Q. Great press notices, huh? A. Oughta see my scrapbook.

Q. Say! Who's he? A. Fella name of Red Foley.

Q. America's favorite country music man? A. The same. He works for Hess & Clark every week, all year . . . big cast, great entertainment.

Q. How come? A. Gotta tell folks about nf-180!

Q. City audience, too? A. Yup, tellin' them how to enjoy the Golden Goodness of Eggs, every day, every month.

Red Foley sells the Golden Goodness of Eggs on 140 stations

The Red Foley Show is sponsored each Saturday by Hess & Clark on the NBC radio Monitor network, coast to coast. All times indicated below are local time. Tune in . . . and tell your friends to listen. You'll all enjoy the show.

Birmingham, Ala.	WAPI	12:30 pm
Mobile, Ala.	WALA	12:30 pm
Montgomery, Ala.	WHHY	12:30 pm
Selma, Ala.	WHBB	12:30 pm
Phoenix, Ariz.	KTAR	12:30 pm
Fayetteville, Ark.	KHOG	12:15 pm
Little Rock, Ark.	KARK	12:30 pm
Fresno, Calif.	KMJ	12:15 pm
Los Angeles, Calif.	KFI	12:45 pm
San Diego, Calif.	KFSD	6:15 am
San Francisco, Calif.	KNBC	12:30 pm
Denver, Colo.	KOA	12:45 pm
Wilmington, Del.	WDEL	12:50 pm
Gainesville, Fla.	WRUF	1:05 pm
Jacksonville, Fla.	WJAX	12:30 pm
Lakeland, Fla.	WLAK	12.30 pm
Miami, Fla.	WCKR	1:05 pm
Tampa, Fla.	WFLA	12:30 pm
Athens, Ga.	WRFC	12:45 pm
Augusta, Ga.	WBIA	12:30 pm
Canton, Ga.	WCHK	12:30 pm
Columbus, Ga.	WDAK	1:00 pm
Gainesville, Ga.	WGGA	12:45 pm
Boise, Idaho	KIDO	12:00 pm
Pocatello, Idaho	KSEI	1:05 pm
Twin Falls, Idaho	KTFI (Mon.)	6-15 am
Chicago, Ill.	WMAQ	6:15 am
Peoria, Ill.	WEEK	12:30 pm
Springfield, Ill.	WMAY	5:15 pm
Elkhart, Ind.	WTRC	12:30 pm
Evansville, Ind.	WGBF	12:30 pm
Fort Wayne, Ind.	WKJG	12:30 pm
Indianapolis, Ind.	WIBC	6:00 am
Davenport, Iowa	WOC	12:30 pm
Des Moines, Iowa	WHO	11:45 am
Waterloo, Iowa	KXEL	12:45 pm
Garden City, Kans.	KIUL	5:45 pm
Hutchinson, Kans.	KWBW	12:30 pm
Pittsburg, Kans.	KOAM (Mon.)	11:05 am
Wichita, Kans.	KFH	12:15 pm
Louisville, Ky.	WAVE	12:30 pm
Alexandria, La.	KSYL	12:30 pm
Lafayette, La.	KVOL	12:30 pm
Monroe, La.	KMLB	12:30 pm
Shreveport, La.	KWKH	12:15 pm
Augusta, Me.	WRDO	12:30 pm
Portland, Me.	WCSH	12:30 pm
Baltimore, Md.	WBAL	12:30 pm
Cumberland, Md.	WTBO	12:30 pm
Boston, Mass.	WEZE	12:30 pm
Worcester, Mass.	WAAB	6:00 am
Flint, Mich.	WFDF	1:00 pm
Grand Rapids, Mich.	WOOD	6:15 am
Houghton, Mich.	WHDF	1:30 pm
Kalamazoo, Mich.	WKZO	12:30 pm
Saginaw, Mich.	WSAM	12:30 pm
Mankato, Minn.	KYSM	5:30 pm
Minneapolis, Minn.	WCCO	1:05 pm
St. Cloud, Minn.	KFAM	12:30 pm
Jackson, Miss.	WJDX	6:05 pm
Laurel, Miss.	WAML	12:30 pm
Kansas City, Mo.	WDAF	6:30 am
Springfield, Mo.	KWTO	7:00 am
St. Louis, Mo.	KSD	1:30 pm
Billings, Mont.	KGHL	12:45 pm
Omaha, Neb.	KFAB	6:45 pm
Las Vegas, Nev.	KORK	12:30 pm
Vineland, N. J.	WWBZ	12:15 pm
Albuquerque, N. M.	KOB	12:00 pm
Roswell, N. M.	KSWS	12:30 pm
Binghamton, N. Y.	WINR	12:30 pm
Rochester, N. Y.	WVET	12:30 pm
Schenectady, N. Y.	WGY	1:00 pm
Syracuse, N. Y.	WSYR	12:30 pm
Asheville, N. C.	WWNC	12:05 pm
Charlotte, N. C.	WBT	12:10 pm
Raleigh, N. C.	WPTF	6:15 pm
Winston-Salem, N. C.	WSJS	12:30 pm
Bismarck, N. D.	KFYR	11:45 am
Fargo, N. D.	WDAY	11:00 am
Cincinnati, Ohio	WLW	1:15 pm
Toledo, Ohio	WSPD	1:05 pm
Worthington, Ohio	WRFD	11:30 am
Youngstown, Ohio	WFMJ	1:05 pm
Zanesville, Ohio	WHIZ	1:05 pm
Tulsa, Okla.	KVOO	1:30 pm
Eugene, Ore.	KUGN	6:15 pm
Medford, Ore.	KMED	12:30 pm
Portland, Ore.	KGON	6:30 pm
Salem, Ore.	KBZY	12:15 pm
Harrisburg, Pa.	WKBO	12:30 pm
Hazelton, Pa.	WAZL	12:30 pm
Johnstown, Pa.	WJAC	1:15 pm
Lancaster, Pa.	WGAL	1:05 pm
Lewistown, Pa.	WMRF	1:05 pm
Philadelphia, Pa.	WCAU	6:15 am
Reading, Pa.	WRAW	12:30 pm
Williamsport, Pa.	WRAK	1:00 pm
York, Pa.	WORK	1:05 pm
Charleston, S. C.	WTMA	12:30 pm
Columbia, S. C.	WIS	1:15 pm
Greenville, S. C.	WFBC	6:15 pm
Spartanburg, S. C.	WORD	12:30 pm
Huron, S. D.	KIJV	12:30 pm
Sioux Falls, S. D.	KELO	12:45 pm
Yankton, S. D.	WNAX	12:15 pm
Bristol, Tenn.	WOPI	12:30 pm
Chattanooga, Tenn.	WDEF	12:30 pm
Knoxville, Tenn.	WATE	12:30 pm
Memphis, Tenn.	WMC	12:30 pm
Nashville, Tenn.	WSM	1:05 pm
Alpine, Texas	KVLF	12:30 pm
Fort Worth, Texas	WBAP	1:00 pm
Gonzales, Texas	KCTI	12:15 pm
Pecos, Texas	KIUN	12:30 pm
San Antonio, Texas	WOAI	1:05 pm
Cedar City, Utah	KSUB	12:30 pm
Salt Lake City, Utah	KDYL	8:05 pm
Charlottesville, Va.	WINA	1:05 pm
Harrisonburg, Va.	WSVA	6:45 pm
Lexington, Va.	WREL	12:30 pm
Orange, Va.	WJMA	1:05 pm
Richmond, Va.	WRVA	12:30 pm
Roanoke, Va.	WSLS	12:30 pm
Spokane, Wash.	KHQ	7:00 pm
Eau Claire, Wis.	WEAU	1:15 pm
Green Bay, Wis.	WBAY	12:15 pm
LaCrosse, Wis.	WKBH	12:30 pm
Madison, Wis.	WIBA	1:15 pm
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Current Swine Industry Topics Discussed at Florida Meeting

By DR. H. D. WALLACE
University of Florida

GAINESVILLE, FLA.—A number of addresses and demonstrations on swine nutrition, management and marketing made up the program of the recent Florida Swine Field Day held at the University of Florida.

The day opened with a talk by Dr. Howard C. Giles, livestock marketing specialist, on "Florida Hog Prices vs. National Hog Prices." Using Thomasville, Ga., and Chicago as representative markets, Dr. Giles pointed out that Thomasville averaged 81¢ less per cwt. during the first quarter, 82¢ less in the second quarter, 46¢ less in the third quarter and 68¢ less in the fourth quarter during the period 1955-58. The less difference in the third quarter is probably a result of hogs going to market with more grain at that time, he said.

The next two hours were spent touring the swine unit experimental facilities. During a stop at the baby pig research barn, Dr. G. E. Combs discussed problems associated with the early weaning of pigs. A demonstration trial in progress showed pigs weaned at three weeks versus pigs weaned at six weeks. Current performance data indicated that the two groups of pigs would probably weigh about the same at 56 days of age. However, feed cost data (not final) pointed to a substantial saving for the pigs weaned at three weeks of age.

Phosphorus Requirements

Joe Vandepopuliere described work on the phosphorus requirements of early weaned pigs and growing-finishing swine. The crowd had an opportunity to observe pigs in a state of phosphorus deficiency. In two previously completed experiments phosphorus levels of .24, .36, .48, .60 and .72% were fed with Ca:P ratios of 1.2:1 and 2:1. Bone density and bone ash measurements indicated that the minimum requirement was greater than .36%, but possibly less than .48%. The 1.2:1 ratio proved superior to the 2:1 ratio.

Dr. A. C. Warnick and L. Goode exhibited gilts that were on high and low levels of energy intake. Energy intake was controlled primarily by substituting alfalfa meal for ground yellow corn in a self-feeding program. High energy gilts had gained 1.47 lb. per day, averaged 237 lb. at first heat, and were 209 days old at first heat. Low energy gilts had gained .90 lb. per day, averaged 207 lb. at first heat, and were 235 days old at first heat. Ovulation rates at first and second heats were similar for the two groups, but embryonic survival through the first 25 days of gestation was 74% for the low energy gilts, and only 65.4% for the high energy gilts.

Feeding Parlor

A stop of considerable interest to the touring groups was an inspection of the new 100 pig capacity feeding parlor. Dr. H. D. Wallace commented on certain important features concerning the construction of such a unit. The need for a well-constructed floor was particularly emphasized.

The use of good concrete with the proper degree of smoothness and adequate slope was stressed as an aid in the prevention of lameness, and for rapid and complete cleaning. Locating the unit so as to take advantage of natural shading and drainage was advised.

Cost figures available to the producers indicated that the cost of the structure, including labor, was $2,902.28. It was estimated, however, that a similar capacity unit which would work nicely on the average farm could be built for $1,500-$2,000.

An experiment presently underway in the new parlor was discussed briefly. Three antibiotic preparations were being tested when added to a well fortified corn-soybean oilmeal type ration. Bacitracin (Baciferm-10) appeared to be inducing a growth response, whereas a combination of bacitracin and penicillin (Baciferm PB-10) and an unnamed antibiotic (P-252) were ineffective. None of the antibiotic preparations had improved feed conversion through the first four week test period.

Other stops on the tour included inspection of herd sires and sow herds. W. E. Collins and D. L. Wakeman described feeding and management procedures, and passed out production and carcass data for certain breed crosses. Kenneth L. Durrance demonstrated the backfat probing technique on live hogs, and Dr. H. D. Wallace described the farrowing facilities and management practices.

Carcass Quality

The next phase of the program was devoted to carcass quality demonstrations by Drs. A. Z. Palmer, R. L. Reddish and J. W. Carpenter. Carcasses of different degrees of fatness and meatiness were broken down into retail cuts. By placing current prices on these cuts, it was illustrated that the meat packer could afford to pay approximately $1.50 cwt. more for live hogs of average meatiness than hogs of average over-fatness. Differences in meat qualities were further strikingly illustrated with entire frozen carcasses.

An overfat type, meat type, and a meatless wonder type were frozen solid, then sliced across the body at the 10th rib and behind the shoulders. The faces of these cross sections showed tremendous differences in the amount and quality of lean tissue.

Confinement Feeding

The first speaker of the afternoon program, Dr. R. F. Sewell, who is in charge of the swine work at the University of Georgia, gave a presentation on "Confinement Feeding—The Housing and Manure Disposal Problem." The discussion was supplemented throughout with colored slides illustrating the problems encountered by producers in Georgia.

Dr. Sewell said: "Hog production in recent years has been rapidly changing from the small hog unit, which has been traditionally a part of almost every farm operation, to a large, well-organized, highly efficient operation that makes use of every conceivable idea and device to reduce labor and management problems while increasing profits. One of the significant far reaching new trends to play a part in this changing picture has been the production of hogs in confinement.

Confinement feeding concentrates the hog business. It may also intensify disease and sanitation problems unless good management is applied. Concentration can make a good sanitation and disease prevention program easier to follow, but at the same time it also makes a good sanitation and disease prevention program more essential.

There are many different designs and types of housing that are proving satisfactory in confinement feeding operations. However, a few fundamental principles of hog management apply in all cases. A basic structure that will provide comfortable housing for pigs under the climatic conditions which prevail in the area in which it is to be used is the first essential. This should be easily cleaned and provide reasonable protection from the elements.

"A good supply of water for cleaning and watering is important. The more water pressure available the shorter the time for cleaning. Adequate space should be allotted for each pig being fed. This will vary with the size of pig and weather conditions. Make sure adequate feeder space is available and feeders are in good working order. Arrangements should be made for feeding pigs in separate pens according to size.

"During hot summer weather a water sprinkler system should be provided in one corner of the pen for cooling the hogs. The sprinkler is especially important when the temperature gets above 80° F.

"Manure disposal may be a problem in confinement feeding. If proper consideration is not given to this factor, it can lead to a severe sanitary problem. Perhaps the most satisfactory solution has been the use of a concrete pit in which the manure and washings are collected, to be removed later and spread on crop land from a tank wagon as liquid manure.

"Where good management prevails and careful attention to detail is followed, the production of hogs under a confinement system offers certain

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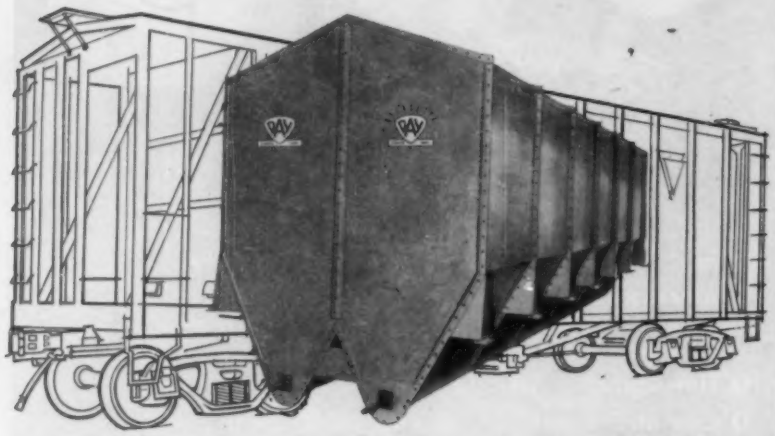

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advantages. Particularly is this true where many hogs are involved."

Dr. G. E. Combs discussed the care and management of young pigs under the broad phases of housing, management and feeding. One of the most critical periods in the life cycle of a pig is during the early weeks of life; approximately 30% of all pigs farrowed alive die before they are eight weeks old, with 70% of the fatalities occurring during the first week of life, he said.

Numerous factors contribute to this high mortality rate and while some cannot be directly attributed to mismanagement and poor feeding practices, many of these losses can be prevented by following established and recommended procedures, he continued.

Dr. Combs' comments on feeding are summarized as follows: The present day swine producer has at his disposal several methods of feeding young pigs. He may follow a creep-feeding program; he may use one of several early weaning plans, or use a combination of these programs. In any case, the ration fed should be balanced nutritionally, be fortified with antibiotics and be palatable.

Numerous ingredients have been added to creep and starter rations to enhance palatability but, in general, additions of sugar or fat have been the most satisfactory. Rations that are pelleted have also usually been consumed in larger amounts and with less waste than rations fed in meal form. However, even the most palatable ration will not be eaten if allowed to become musty. In addition to fresh feed, an ample supply of clean, fresh water is also needed for optimum performance of young pigs.

Swine Outlook

The swine outlook for the coming year was covered in a talk by Dr. T. J. Cunha. Following are some of his comments: "The 1959 spring pig crop in the U.S. was 12% larger than in 1958, which makes it the largest spring pig crop since 1951. It is predicted that this fall's pig crop will be about 8% larger than last year's. This means that prices this winter and next spring should be lower than hog prices were last year.

"If the coming 1960 spring pig crop is much larger than this year's then even lower prices will occur in the summer and fall of 1960. Thus, it looks like hog prices will continue low through 1960. Unless the increase in hog numbers is stopped by next spring, prices in the fall of 1960 are apt to be as low or lower than this fall.

"During the next year, the swine situation should be helped to some extent by the following: (1) Business and purchasing power by the consumer is expected to be good through 1960, and (2) the cattle cycle may still be on the up-grade through 1960, meaning that cattlemen will be increasing herds and thus selling less beef for slaughter. Thus, the swine producer may stop increasing numbers before the cattlemen start to increase beef slaughter and (3) with 1960 an election year, there is a good chance the government will buy pork this fall as it did in 1955 and 1956.

"There are some indications, due to multiple farrowing, and thus a more even supply of pigs throughout the year that, in the future, summer prices will not be as high as previously was the case, and fall prices will not be relatively as low as in the past. This situation will benefit everyone concerned and should be encouraged as much as possible."

Crossbreeding Systems

Dr. M. Koger described the advantages and limitations of commercial crossbreeding systems. The superior mothering ability of crossbred sows appears to be the greatest benefit resulting from crossbreeding. Unless crossbred sows are used, there appears to be little economic advantage from crossbreeding except to make a rapid change in type. Crossbred sows have weaned slightly larger, more uniform litters than straight bred sows in nearly every trial that has been reported, the speaker said.

Dr. H. D. Wallace has these comments on multiple farrowing: "We hear much these days about the need for greater efficiency in the hog business. Multiple farrowing is one of several relatively new developments that may provide the producer an

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opportunity to achieve greater efficiency. Successive regular farrowings of several groups of sows through the same facilities represent a means of reducing labor, housing and equipment costs. It will mean a more even distribution of farm income and less marketing risk to the farmer. A more regular and steady supply of pork on the market should help to strengthen and stabilize prices. These are the obvious reasons for farrowing throughout the year rather than during one month in the spring and one month in the fall.

"Integral parts of the multiple farrowing scheme are more centralization, use of more concrete and less pasture, earlier weaning and of course, more systematic and controlled breeding. Close confinement of hogs of different ages introduces problems in management which should be clearly appreciated. Sanitation becomes very critical.

"Nutrition and other management practices take on greater importance. There is no possibility of success without top-notch management. The producer must be willing to study new research findings and apply them to his operation whenever possible. A successful system of multiple farrowing offers definite opportunities for improving the efficiency of swine production. But it also demands much 'hog know-how,' and is not recommended for the inept hog raiser. Multiple farrowing will only multiply this man's problems."

Dr. W. L. Sippel, veterinarian, spoke on the theme "Stunting Diseases of Swine." Atrophic rhinitis and the several types of pneumonia were considered the most serious problems in Florida.

Following are summaries of research reports which appeared in the handout "Report to Farmers." (A copy may be obtained by writing to Dr. H. D. Wallace, animal husbandry department, University of Florida, Gainesville, Fla.)

PASTURE VERSUS CONCRETE FOR GROWING-FINISHING SWINE, H. D. Wallace and G. E. Combs. An experiment involving 51 weanling pigs was conducted to compare performance and feed costs of finishing pigs in concrete confinement versus on excellent legume forage. The ration fed to all groups was a typical corn-soybean meal mixture completely fortified with known essentials and antibiotic. Pigs self-fed on concrete gained 1.68 lb. per day and required 3.56 lb. of feed per pound gain. Similar pigs self-fed on legume forage gained 1.75 lb. per day and required 3.45 lb. of feed per pound gain. This amounted to an estimated saving of $12.67 in feed for each acre of pasture. The total cost of producing an acre of the forage was $27.90.

A third group of pigs was fed on legume pasture, but restricted to 80% of a full grain intake. These pigs gained 1.39 lb. per day and required 3.38 lb. of feed per pound of gain. The saving in feed per acre of pasture was only $11.78 in this case. Thus, in both instances the savings in feed due to pasture fell far short of paying for the expense involved in growing the forage.

MILLET PASTURE VERSUS CONCRETE FOR GROWING-FINISHING SWINE, R. B. Christmas, G. E. McCabe, H. D. Wallace, G. E. Combs and A. Z. Palmer. Pigs full-fed on the pasture gained and converted feed at approximately the same rate as pigs full-fed on concrete. Pigs limited to 80% of a full concentrate ration on pasture gained significantly slower but required about the same amount of feed per unit of gain as pigs full-fed. This indicated that concentrate restriction did not improve forage utilization.

Cost data clearly revealed that growing millet pasture for growing-finishing swine was an unprofitable venture under the conditions of this experiment. Carcass data indicated that pasture-fed pigs were slightly leaner than pigs fed on concrete.

CONTINUOUS FEEDING OF PIPERAZINE PHOSPHATE TO PIGS TWO WEEKS OF AGE UNTIL MARKET WEIGHT, G. E. Combs, H. D. Wallace and R. B. Christmas. The ability of piperazine phosphate to stimulate rate of gain when continuously fed to growing-finishing pigs has been previously demonstrated in studies at the Florida station. The relatively small numbers of ascarids counted at the termination of these studies indicated that the growth promoting action of piperazine phosphate may not be entirely attributed to its anthelmintic properties. The experiment reported here was undertaken to determine if continuous low-level feeding of piperazine phosphate stimulated growth with "worm-free" pigs. Differences between the basal and piperazine fed lots for both rate and efficiency of gain were insignificant, which tends to indicate that the growth stimulating effect of piperazine may be mainly attributed to its anthelmintic properties.

COMPARISON OF PROTEIN SUPPLEMENTS FOR GROWING-FINISHING SWINE, G. E. Combs, H. D. Wallace, R. B. Christmas and G. E. McCabe. This study was concerned with the comparative performance of pigs fed rations containing either soybean oilmeal, tankage, a combination of soybean oilmeal and tankage or a commercial protein supplement. Three experiments were involved. In Experiment 1, gains and feed conversion were 1.78, 2.63; 1.63, 3.68, and 1.68, 3.70, respectively, for soybean meal, tankage and the mixture. Experiment 2 utilized pigs of considerably less initial weight. Similar data for the same respective treatments were 1.27, 2.84; 0.90, 3.31, and 1.28, 3.05. The third experiment compared soybean oilmeal to a commercial protein supplement. Daily gain and feed required per pound gain were 1.77, 3.68, and 1.67, 3.61 for the soybean meal and the commercial supplement, respectively.

ARSENOSOBENZENE AS A FEED ADDITIVE FOR GROWING-FINISHING SWINE, G. E. McCabe, H. D. Wallace, G. E. Combs and J. M. Vandepopuliere. Certain organic arsenicals have been used successfully as growth promotants and disease control agents in swine feeds. Arsanilic acid and 3-nitro-4-hydroxyphenyl arsonic acid have been studied extensively and are presently accepted as useful feed additives. Part of the value of these arsenicals seems to be related to the fact that they destroy certain harmful organisms which antibiotics do not contral, such as histomonads, coccidia and spirochetes. In the present study a series of four

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experiments involving a total of 125 pigs were conducted to test the value of arsenosobenzene. The results as measured by gains and feed conversion indicated that arsenosobenzene (Arzene) was an ineffective growth stimulant. Levels of 19 and 38 gm. per ton of feed, which were the only levels tested, produced no noticeable effect on ration acceptability and no evidence of toxicity.

SUPPLEMENTAL LYSINE FOR GROWING-FINISHING SWINE FED A CORN-SOYBEAN OILMEAL RATION, H. D. Wallace and G. E. Combs. An experiment involving 40 pigs was conducted to determine the supplemental value of three levels of l-lysine (.05, .10 and .15%). Results, measured in terms of daily gains and feed conversion, indicated that none of the levels of lysine exerted a significant beneficial effect.

INJECTABLE IRON FOR THE PREVENTION OF BABY PIG ANEMIA, H. D. Wallace, R. B. Christmas and G. E. Combs. Four trials involving 381 pigs from 47 litters have been conducted to determine the effectiveness of injectable iron for the prevention of baby pig anemia. In all trials injectable iron significantly elevated hemoglobin levels and prevented all deaths from anemia. Eight-week weaning weights were heavier for the iron injected pigs. Two injections, one at three and one at 10 days of age, were superior to a single injection at three days of age. Intramuscular injections of iron-dextran (Armidexan) were more effective for the maintenance of hemoglobin than subcutaneous injections of iron and B_{12} (Rubrafer). No serious toxic effects were observed from injections of the test materials. The use of suitable injectable iron compounds for the prevention of anemia in suckling pigs is recommended. This procedure represents a very effective method of preventing not only acute anemia, but borderline cases which may increase losses from other causes. Pigs suckled for extended periods in confinement without access to soil are in greatest need of the injections. Cost is the only major objection to the use of iron injections. It is the author's opinion, however, that the injections will more than pay their way by making it possible to wean more pigs that are heavier and healthier.

Valley Mills Appoints Territory Manager

VICKSBURG, MISS. — Robert Woody has been appointed territory manager for Grade A Feeds by Valley Mills, Vicksburg. He will supervise an east-central Mississippi territory.

Robert Woody

Mr. Woody is a graduate from Oklahoma State University with a major in animal husbandry.

He was associated with Nutrena Mills in a Mississippi territory before joining Valley Mills. Valley Mills manufactures and distributes Grade A Feeds in Louisiana, Mississippi and Alabama.

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Sweetclover Seed Crop Is Lowest Since 1943

WASHINGTON—The 1959 crop of sweetclover seed is forecast at 25,560,000 lb., 3% less than last year's small crop of 26,431,000 lb. and 45% less than the 10-year average, according to U.S. Department of Agriculture and Minnesota department of agriculture officials.

Officials say the current crop is the smallest since 1943 and production has been declining almost steadily for the past 10 years because of ravages of the sweetclover weevil.

Reports indicate 13.9% of the total production this year is biennial white, 53.3% biennial yellow, 24% Hubam and 8.8% mixtures.

Production is below last year in 11 of the 16 producing states, with increases occurring only in Texas, Minnesota, Ohio, Indiana and Illinois.

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ONE USED 1952 HIGHWAY TRAILER, equipped for bulk feed delivery, 24 ft. long, complete with full length screw, 15 H.P. gasoline engine, and 2-piece unloading conveyor. Good condition. Contact Fred Cook, Archer-Daniels-Midland Co., Minneapolis 2, Minn.

FOR SALE—ENCLOSED MOTORS; RICH-ardson Scale; truck scales, hammermills; oat crimpers; horizontal and upright feed mixers; sewing machines; elevator legs; screw conveyors; molasses mixers and pellet mills. J. E. Hagan Mill Machinery, Box 574, Jefferson City, Mo.

FOR SALE — SPROUT-WALDRON SIM-plex pellet mill, recently rebuilt, new cast iron pellet chamber, die head, main bearings and seals, drive belts, equipped with 2 H.P. variable speed drive on feeder and mixer unit, TEFC 75 H.P. Fairbanks-Morse motor, 7/8" die and roll, used three weeks, no starting equipment, $2,300. Address Ad No. 5255, Feedstuffs, Minneapolis 40, Minn.

ONE USED CALIFORNIA SPECIAL 50 H.P. heavy duty pellet mill with TEFC 50 H.P. motor, TEFC 3 H.P. gearhead mixer feeder drive, NEMA 5 cross line magnetic starters with push buttons, new feed and mixer shells, new die, for 3 ph. 60-cycle, 220 volts, in good operating condition, as is and where is, f.o.b., for $3,650. John Zibert, Box No. 223, Grand Meadow, Minn.

THREE MOBILE MILLS USED BUT IN excellent condition; two Sedberry's and a Seco mounted on Ford INC and GMC two equipped with air unloaders, all in excellent operating condition. Priced well below market value. Financing available. Compare price and condition with any used mill on the market. Address W. T. Bucher, Box 1064, Nashville, Tenn.; Phone CYpress 22829.

JUST LIKE NEW CHAMPION MOBILE mill and mixer. Propane mill motor, factory new six weeks ago. Truck motor new last week (no short blocks). Both engines latest overhead valve V8's. Cab-forward Ford in excellent shape. Mill and mixer completely gone over. Will give written guarantee. Full price $5,450. Will finance $2,450 at 6% for two years. Call Advance Farm Service, Madison, S. D.; Clinton 6-4266.

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FOR SALE—1957 DAFFIN WITH AIR UN-loader, A-1 condition — $13,500. Fertile Valley Hatchery, Fertile, Iowa.

SALE: ALUMINUM TANKS, 22,000, 15,000, 3,000 gal. Dewatering presses; Davenport No. 1A, 3A, Louisville 8-roll 36". 3—Louisville rotary steam tube dryers, 6'x50', 6'x 25'. 4' dia. stainless steel spray dryers. Perry, 1403 N. 6th St., Philadelphia 22, Pa.

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ALL KINDS OF GOOD USED GRAIN processing machinery. E. H. Beer & Co., Inc., Baltimore 24, Md.

WANTED—USED MARION MIXER, 1 TO 3 ton size, and used 50 to 100 gallon emulsifier for heating and mixing liquids. Gurley Milling Co., Princeton, N. C.

FOR IMMEDIATE CASH WE WILL PUR-chase Rotary Alfalfa Dryers or other types of rotary dryers. Address Ad No. 5192, Feedstuffs, Minneapolis 40, Minn.

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WANTED—13" OR 15" BELT, 12" OR 14" cups or complete 45'-50' leg. Also 8" spouting 3 H.P. auger drive 10 to 40 R.P.M., variable speed. Sensmeier Feed & Grain, Route 1, Haubstadt, Ind.

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EXPERIENCED FEED MILL SUPERIN-tendent now with national concern desires to locate in Midsouth or Southwest, in present line or sales and service representative for manufacturer or distributor of milling equipment. Address Ad No. 5254, Feedstuffs, Minneapolis 40, Minn.

PRODUCT AND PROCESS DEVELOP-ment, Ph.D., university employed. Years in formula feeds, premixes, concentrates, canned pet foods. Consultant in computer formulation. Desire consulting work, plant ownership or partnership. Address Ad No. 5232, Feedstuffs, Minneapolis 40, Minn.

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WANTED — TWO AGGRESSIVE FEED salesmen for Iowa and Nebraska. Excellent future with a leading feed company. Address Ad No. 5265, Feedstuffs, Minneapolis 40, Minn.

SERVICE MAN FOR KANSAS CITY, MO.— Will travel Midwest area. Write stating qualifications, age and salary expected. Address replies, W. G. Trapp, California Pellet Mill Co., 1114 East Wabash Ave., Crawfordsville, Ind.

POULTRY PATHOLOGIST — A PROGRES-sive eastern chemical corporation needs a man for poultry diagnostic laboratory and related technical service work. An excellent opportunity for advancement. Write Ad No. 5260, Feedstuffs, Minneapolis 40, Minn.

SALESMAN — NATIONAL FEED MANU-facturer seeking salesman experienced in agricultural field for work in Michigan territory. This is an opportunity to establish a satisfying career in a growing industry. Write with qualifications to W. G. Stokes, District Sales Manager, 12730 Beck Road, Plymouth, Mich.

DISTRICT SALES MANAGERS-SALESMEN —Manufacturer animal health products, antibiotic vitamin mineral supplements. Territories open Indiana, Illinois, Iowa, Wisconsin, Michigan, Pennsylvania, New York, other states. Expenses, salary, commission. Give details, experience, references. Address Ad No. 4510, Feedstuffs, Minneapolis 40, Minn.

MANUFACTURER'S REPRESENTATIVE — Well known manufacturer has opening for man now calling on feed dealers to sell special fast selling product to dealers, good commission, payable monthly, full credit on repeat business, excellent sales promotion program. For details give territory now covering and how often. All replies confidential. Write R. F. Davis, Box 5020, Minneapolis 6, Minn.

SALES ENGINEER — FAMILIAR WITH feed milling machinery, pellet mills, coolers, liquid blending equipment, feed mill layouts. Age 30 to 40, engineering background, heavy emphasis on sales. Interested in high earnings $15,000 per year or better. Travel Monday through Friday. Sober and reliable. Only man possessing above qualifications and presently successful need apply. Address Ad No. 5199, Feedstuffs, Minneapolis 40, Minn.

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Assistant Ad Manager position with nationally distributed feed company. Open to man with feed advertising experience and ability to write compelling copy to dairy, beef, poultry farmers. Age 25-35. Send complete resume and samples of writing to ad No. 5243, Feedstuffs, Minneapolis 40, Minn.

Formula Feed Salesman

We have openings for territory managers and assistants in Michigan, Wisconsin and Illinois territories. Sales experience in formula feeds or an agricultural background desirable.

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Reply to John W. Eshelman & Sons P. O. Box 380, Circleville, Ohio

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FEED CHEMIST TO SET UP NEW LABO-ratory for midwestern feed manufacturer. Initial work to be basic analyses of inbound ingredients and outbound feed. Address Ad No. 5233, Feedstuffs, Minneapolis 40, Minn.

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FEED MILL IN CENTRAL MINNESOTA in rich farming area. Well equipped. Hatchery available if desired. Address Ad No. 5228, Feedstuffs, Minneapolis 40, Minn.

FOR SALE — SEVERAL GOOD GRAIN elevators and feed mills in Indiana. Financing can be arranged. When buying or selling a grain or feed business, call us. Boyer & Nail, Real Estate Brokers, Milroy, Ind.

COMBINATION GRAIN ELEVATOR, BEAN elevator and retail feed store. On CB&Q. Good equipment. 65,000 bu. storage capacity. Owner retiring. Priced right. C. E. "Ken" Reed, Real Estate, 501 W. Platte Ave., Ft. Morgan, Colo.

DISTRIBUTOR WANTED FOR TEXAS — Nationally known animal health products company wants a reliable distributor with salesmen. Can offer good discount and point of sales helps. Only Dun & Bradstreet listed firms need apply. Address Ad No. 5215, Feedstuffs, Minneapolis 40, Minn.

ARE YOU SELLING IN IOWA? LONG established central Iowa business, looking for additional lines or products to handle. Present products very seasonable. Warehouse with truck docks and rail facilities. Well acquainted with the feed, seed and implement trade at all levels. Can furnish good business and bank references. Our principals know of this ad. Address Ad No. 5186, Feedstuffs, Minneapolis 40, Minn.

FOR SALE

3,000 tons per month complete feed plant serving a radius of 100 miles in southern Idaho, Nevada, Utah—terrific potential—write for free brochure and further information. Address Ad No. 5253, Feedstuffs, Minneapolis 40, Minn.

German Buyers Prefer Lower Grade Turkeys

LOS ANGELES—German merchant importers of turkeys are inclined to order U.S. Grade B and Grade C turkeys, according to a recent bulletin of the Pacific Dairy & Poultry Assn.

"Since turkeys are no longer under any kind of currency controls when imported from the U.S., there is a growing dangerous trend with respect to quality," says David L. Hume, director of the U.S. Department of Agriculture's Agricultural Service, dairy and poultry division.

One importer stated U.S. Grade B and C birds are providing unfair competition for fine quality Grade A turkeys and that the German consumers will decide that U.S. turkeys are no better than those from Poland, Hungary and other competing countries, according to the bulletin.

The bulletin goes on to say that U.S. exporters are urged to consider this report, since West Germany and western Europe offer "unprecedented opportunities" for market expansion in the long run.

NEW BREEDING STOCK STRAIN—These Boland (80% Poland) boars are an example of one of four new strains developed by Dr. W. N. McMillen, Red Meat Farms, Decatur, Ill., for rotation crossing with a swine producer's own crossbred gilts. They averaged more than 200 lb. at five months and probed just over 1 in. of backfat.

Four Boar Strains Used in New Hog Crossing Program

DECATUR, ILL.—A swine breeding program "designed to overcome the segregation and variation resulting from breed crossing and from hybrids when 6-8 breeds are represented" has been developed by Dr. W. N. McMillen, Red Meat Farms, Decatur.

Dr. McMillen said a producer can develop a black herd of "uniform, productive, healthy and meaty" crossbred hogs by using black boars from three or four new strains in a rotation cross while continuing to use his own crossbred gilts.

The uniformity demonstrated in tests of the new breeding program, Dr. McMillen noted, "overcomes the biggest objection to crossing. By doing it in good commercial herds, hogs are produced economically."

He said the program has been farm tested on 2,000 boars and 3,000 females.

Some "stumbling blocks" have slowed progress in the production of crossbred market hogs, according to Dr. McMillen, who said the "Red Meat Hogs" program is aimed at overcoming these problems. He commented that variations resulting from crossbreeding have made swine growers skeptical "and many continue to shift from one idea or breed to another without steady progress toward a profitable meaty hog herd."

The "stumbling blocks" he referred to include: "(1) Shortage of production tested meaty boars and gilts—only 10-20% of present-day hogs qualify; (2) disease—especially introducing disease with new breeding stock; (3) failure to follow planned crossing programs; (4) disappointment of swine producers over performance of some apparently meat-type breeding stock, and (5) segregation of crossbreds into different types, colors, growth rates, resistance to stresses and disease and other factors."

In explaining the development of the Red Meat Farms swine breeding program, Dr. McMillen said, "Some breeders of hybrid broiler chickens are attempting and are actually producing uniform hybrids. Laying hens are now being produced by first strain crossing. This production of uniform crossbreds is a logical goal for swine producers."

With this in mind, he said, a start was made seven years ago to develop four black strains of hogs, as much alike as possible, that could be used in a rotation breeding system to produce uniform market pigs.

Dr. McMillen reported that he has developed four black strains, "each carrying as much blood of one breed as possible, correcting some weaknesses of each of the breeds used by a small amount of outside blood." He added that the percentage of blood of the main breed in each strain will be increased.

The four strains developed by Dr. McMillen are the following:

No. 1—Blandrace (black Landrace): This strain is recommended for use in the first cross. It was developed by working Danish Landrace blood into Montana No. 1 and black hybrids until the strain is now 80% Landrace and 20% Black Hampshire.

No. 2—Boland (solid black Polands): This strain, 80% Poland China and 20% black hybrid, is bigboned, rugged and meaty and, according to Dr. McMillen, further increases the hybrid vigor, growth rate and muscle as the second boar to use in the rotation.

No. 3—Boroc (black Durocs): The Boroc boar, 66% Duroc and 33% Black Hampshire, is recommended as the No. 3 boar in the rotation to hold or increase several production factors. This strain is an improvement over the Duroc, Dr. McMillen said, because of greater muscling.

No. 4—Borkshire (carcass strain): Dr. McMillen said "some tremendous gains and outstanding meat-type hogs" have been produced by using this fourth strain (50% Yorkshire, 25% Berkshire and 25% black hybrid) in the cross. "Some breeders object to the activity or slight nervousness of this strain and prefer to use only the three-way cross of No. 1, No. 2 and No. 3," Dr. McMillen explained.

Cyanamid Gives Grant

NEW YORK—The continuous feeding of Aureomycin chlortetracycline to lactating dairy cows over prolonged periods is being studied by the University of Vermont.

Aided by a grant from American Cyanamid Co., university scientists are studying the influence of Aureomycin on the economy of milk production as well as for disease prevention. The studies are under the direction of Dr. A. M. Smith, animal nutritionist for the dairy husbandry department.

To date, Cyanamid noted Aureomycin is the only antibiotic which has been cleared by the Food and Drug Administration for continuous feeding to cows producing market milk. The recommended level is ten mgs. per 100 lb. body weight.

Personal Development

WALTHAM, MASS. — John E. Sawyer, vice president in charge of distribution for Wirthmore Feeds, Inc., Waltham, was among 13 executives of Corn Products Co., Wirthmore's parent organization, to complete a three week personal development program recently for management personnel at Wabash College, Crawfordsville, Ind.

Consisting of two general phases, academic and personal, the course included daily lectures, study and tutorial sessions on writing and speaking as well as evening seminars.

Mr. Sawyer, a 31-year member of the Wirthmore organization, is presently responsible for the company's overall marketing program. A former plant manager and director of retail stores, he assumed his present position in 1957.

Canada Feed Industry History Told in Booklet

TORONTO—A booklet outlining the history of the Canadian Feed Manufacturers Assn., 1929-1959, and of the Canadian feed industry, 1812-1959, has been prepared and published by the Canadian Feed Manufacturers National Council.

The 54-page effort is a compilation of facts and figures regarding historical events, legislation, standards, organizations and economic and social influences which have been a part of Canada's feed industry over the years. A section of the publication is devoted to Canadian provinces and the feed industry within each of them.

W. N. Hendrick, the council's general secretary, edited and compiled the history for publication. He was assisted by J. E. McRostie, W. R. White, F. W. Presant, J. de Broin, C. R. Phillips, C. L. Stevenson and others who collected and submitted material.

N. D. Hogg, national chairman of the council's public relations committee, writes in the booklet's preface: ". . . The information presented may not be complete in every detail but it is in a form that additions and corrections, where necessary, can be made very easily. At least we have a compilation of material that will be useful as a source of information and reference in the future . . ."

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More Even Farrowings Smooth Out Supply

WASHINGTON—The old summer scarcity and the fall glut in market supplies of hogs have disappeared, mostly because hog producers have broken away from their old habit of concentrating farrowings in a few months. Seasonal differences in supplies and prices remain, but they are less extreme than before.

To illustrate this change in the farrowing and marketing pattern, Harold F. Breimyer, agricultural economics division, Agricultural Marketing Service, pointed out the following comparison of 1948 and 1958 farrowing figures:

	1948 %	1958 %
December-February	10.5	20.6
March-May	50.2	35.0
June-August	17.7	23.4
September-November	21.6	20.8

Mr. Breimyer pointed out in the September issue of Agricultural Situation published by the U.S. Department of Agriculture that half of all farrowings in 1948 were in March, April and May. Now only a third are in those months. December, January and February were low in 1948. But, since then, that period's share has doubled.

He explained that, in one sense, smoother seasonal farrowings merely move a few dollars of price from one season to another. On the other hand, he said, stability in the supply and price of pork strengthens the demand for it, an advantage of smoother farrowings.

Mr. Breimyer noted that hog prices are down "and their outlook for the next year is not bright." He added that the future "does not favor overall expansion in the hog industry."

Marketing of hogs from the large 1959 pig crops began only recently. Because numbers marketed will be consistently larger, prices will be lower in the next 12 months than in the past year, Mr. Breimyer commented.

But, according to Mr. Breimyer's analysis, because of smoother seasonal supply, prices are not expected to bounce around much in the year ahead. This fall, for instance, prices probably will fluctuate within a rather narrow range.

G.T.A. to Build Feed Facilities at Billings

ST. PAUL, MINN.—Farmers Union Grain Terminal Assn., St. Paul, has signed a contract to build a new elevator and feed distribution plant at Billings, Mont., to replace the co-op facilities destroyed by fire this spring, M. W. Thatcher, general manager, announced.

The facilities will include a 70,000 bu. elevator, a steam roller plant, a large warehouse and space for including a complete feed mill at a later date, should business in the area warrant it, according to Tony Roffers, manager of the GTA feed division. The new elevator will be built on the site of the old plant, which was completely destroyed by fire.

Cost of the new plant, to be built by the Hogenson Construction Co., is $215,000.

The GTA also operates feed plants at Glendive, Chinook and Great Falls, Mont.; Perham and Montevideo, Minn., and at Williston, Minot and Hunter, N.D.

Long-time plans call for regionalizing feed mill operations in order to reduce hauling distances and to provide quicker deliveries, Mr. Roffers said.

Dr. Foulkes Joins Staff Of Dr. Salsbury's Labs

CHARLES CITY, IOWA—Dr. Robert H. Foulkes, formerly of the St. Louis (Mo.) University faculty, has joined Dr. Salsbury's Laboratories, Charles City, Iowa, as a researcher in the helminthology department. His principal work is research in toxicology (concerned with product safety).

Dr. R. H. Foulkes

A graduate of Coe College, Cedar Rapids, Iowa, Dr. Foulkes received both his master's and doctorate from the State University of Iowa, Iowa City. His principal field is zoology, teaching that subject along with biology and doing research in histochemistry. He was on the faculty of the State University of Iowa for four years, taught zoology at Northern Illinois University, DeKalb, and has done research on tumors at the Edsel B. Ford Institute, Detroit.

Clemson Gets $4,500 For Poultry Research

CLEMSON, S.C. — The Clemson College poultry department has received $4,500 in grants to aid in research on the effect of dietary antibiotics and certain other non-nutrient additives on laying hens.

Dr. B. D. Barnett, department head and project leader, said a $2,000 grant came from Abbott Laboratories, North Chicago, Ill., and $2,500 from Chas. Pfizer & Co., Inc., Terre Haute, Ind.

Dr. Barnett says dietary antibiotics have been shown to greatly increase the growth rate of chicks, but the effect on laying hens throughout the country has been variable. Previous results at the South Carolina Experiment Station indicate that a consistent increase in egg production is obtained from feeding tetracycline antibiotics.

Present investigations are concerned with the effect of the newer antibiotics and certain other compounds known to inhibit growth of micro-organisms, Dr. Barnett said.

The experiment also is designed to determine whether the antibiotics, arsenicals and nitrofurans exert their actions in the same manner.

New Feed Supplement Noted in IMC Report

CHICAGO — The development of MC-59, a cattle feed supplement, and the introduction of a new process which has boosted the output of dicalcium phosphate (trade-marked Dynafos) were noted in the 50th annual report of International Minerals & Chemical Corp., Skokie, Ill.

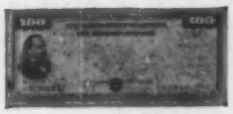
The report lists record sales of $112,560,000, and a 17% increase in net earnings to $6,189,000, or $2.47 per share on the 2,349,427 common shares outstanding. Sales in the previous year, ending June 30, 1958, were $103,663,000 and net earnings were $5,273,000, or $2.09 per share.

A nurse nudged us to action

"We ought to tell *all* our people about U.S. Savings Bonds as regularly as we tell them about safety," said our nurse in the first aid room. "Many of the men and women who come in here don't even know we have a Payroll Savings Plan."

We had to admit she was right. And when we called our State Savings Bond Director, he agreed with her. He helped us set up a company-wide information plan that tells every employee —frequently—about the advantages of buying U.S. Savings Bonds systematically.

That was just a few days ago. Today we have the largest employee participation we've had since the mid-forties. People always welcome a chance to make use of this sound and simple savings plan. Today there are more payroll savers than ever before in peacetime. Look up *your* State Director in the phone book or write: Savings Bonds Division, U.S. Treasury Dept., Washington, D. C.



FEEDSTUFFS

THE U. S. GOVERNMENT DOES NOT PAY FOR THIS ADVERTISEMENT. THE TREASURY DEPARTMENT THANKS, FOR THEIR PATRIOTISM, THE ADVERTISING COUNCIL AND THE DONOR ABOVE

ADDITIVES

(Continued from page 1)

tivities included a review of present requirements for clearing feed additives by Dr. Charles H. Durbin, Food and Drug Administration, Washington; a report on studies of fluorosis in livestock by Dr. P. V. Christofferson, U.S. Steel Corp., Provo, Utah, and several concurrent sectional meetings including that of the scientific advisory committee.

The sectional meetings were devoted to discussions of the possible future activities of subdivisions of the NFIA and the organization as a whole. The association a year ago launched a program intended to greatly broaden its scope of operations. This effort to date has not met with great response, it was indicated at the convention.

William E. Noble, Oelwein (Iowa) Chemical Co., was elected president of the association, succeeding John Western, International Minerals & Chemical Corp., Skokie, Ill. Reelected vice presidents were C. S. Langen, Moorman Manufacturing Co., Quincy, Ill., and W. P. Mann, W. P. Mann Sales Co., Omaha.

Paul Bonewitz, Bonewitz Laboratories, Burlington, Iowa, was elected secretary. Peter Janss resigned as executive secretary, but will be retained as attorney for the association.

Delaney Clause

Dr. Durbin, commented that the so-called Delaney section of the food additives amendment has caused more confusion than any similar legislation, explained the current position of FDA in regard to provisions of the law.

"We are in the position of the policeman who writes a parking ticket," Dr. Durbin said. "He didn't put up the 'No Parking' sign, and we didn't write the law. I will not say that we wanted the Delaney section or that we did not want it."

An important aspect of the food additive law is that FDA now has authority to set tolerances for drugs in feeds and tissue residues, he pointed out. Feeds fall under the Delaney restrictions to the extent that certain additives are "not generally recognized as safe," and while new drugs permitted for use prior to enactment of the food additive amendment have "prior sanction," they cannot necessarily be "generally recognized as safe," Dr. Durbin explained.

The burden of proof regarding safety, he explained, is on the feed additive industry.

The effect on teeth and bones of livestock caused by excessive fluorine intake was described by Dr. Christofferson. Fluorine may enter the animal through water, forage, soil (dust on forage) and mineral feeds. A survey of fluorosis incidence revealed that the severity of teeth damage is related to the general level of nutrition supplied the animals as well as fluorine intake, he reported.

Taste Studies

Dr. Ralph Kitchell, University of Minnesota, reported for the scientific advisory group the results of some of his experiments on the taste mechanism of animals.

"We have just barely scratched the surface relative to the taste mechanism," he said. In his research he has measured the neural response of several animals to different substances. Results of this type of tests must be correlated with "behavioristic" tests dealing with taste, he said.

"Taste is a subjective analysis within the mind of man," he said. "Statements relative to animals being able to taste sweet, bitter, acid and salt can only be done 'anthropomorphically'—projecting the human mind into animals.

"Taste mechanisms in man and animals are basically similar. Evidence for this is obtained from comparative anatomical and physiological studies. Available evidence suggests that sensory taste mechanisms in the phylogenetically lower animals are less specific for chemical substances than in higher animals. Fibers are more specific for sugars, acids and salts in monkeys than they are in lower animals."

Possible uses of chelates in animal nutrition also were described at the scientific advisory session. The report on some basic studies in this field was presented by Dr. Ed Huertl, Dow Chemical Co., Midland, Mich.

Feed Additives

Here are excerpts from Dr. Beeson's comments on feed additives:

Antibiotics—Continuous use of antibiotics with swine has gradually eliminated or reduced the growth-inhibiting microorganisms in hogs. As a result, the comparative response to feeding or not feeding antibiotics today is not as great as it was eight years ago. Antibiotics have not lost their effect. Actually, what has occurred is that the swine quarters have been cleaned up by the continuous use of antibiotics, and thus the control pigs are receiving the benefit and gaining as rapidly as the antibiotic-fed pigs.

If we discontinue feeding antibiotics, then we would revert back to the same place we were in 1950.

Antibiotics are a great boon to the livestock industry, and if we continue searching for new and more effective antibiotics, then the use of antibiotics in livestock rations will last forever.

Arsenicals—Arsanilic acid has been shown to improve gain and feed efficiency in swine when fed at a level of 90 gm. per ton of complete feed. Apparently cattle do not respond favorably to arsenicals.

Chembiotics — In some experiments, especially under western cattle feeding conditions, significant stimulation has been obtained by feeding 1 to 2 grams of Dynafac per animal daily. However, most midwestern experiments have shown no response from the use of chembiotics.

Enzymes — Varying results have been obtained in feeding enzymes to cattle. Regardless of these inconsistencies, more research needs to be conducted on the use of various types of enzymes in livestock rations, and this opens up a new field for research which should be thoroughly investigated. There are many natural enzymes which occur in feedstuffs which may be of some value to the metabolism of the animal if they are properly activated. It is possible that some day we will be fortifying rations of animals with certain enzymes which will aid in the digestion of feeds.

Ethanol—A critical review of the literature to date indicates that ethanol (ethyl alcohol) has no significant effect upon rumen fermentation, gains, feed efficiency or carcass quality in cattle.

Hormones and hormone-like substances—Today stilbestrol is the best growth stimulant available for ruminant animals. Within a few years, this picture may change; new hormones will be discovered. Recent studies suggest that a combination of stilbestrol and testosterone may give better results than stilbestrol alone. Male hormones seem especially well adapted to heifers. Progesterone and estradiol combinations have given excellent results with cattle and lambs in the feedlot. Research at Purdue has indicated that certain chemical modifications of testosterone show promise in reducing the amount of fat and increasing lean meat in swine.

It appears that thyroprotein is not the answer to increasing milk production.

The application and possible use of Tapazole are still in the experimental stage.

Live rumen cultures—The reproductive capacity of the billions of bacteria in the rumen far exceeds the comparatively small number that could be added by a live rumen culture or concentrate. The microorganisms in the rumen can be most favorably stimulated by proper balance of essential nutrients.

Tranquilizers—In 1959 research reports from Illinois, Iowa and Purdue indicated that feeding tranquilizers to cattle on fattening rations did not increase gain or improve feed utilization. In earlier tests some response had been obtained by feeding hydroxyzine to cattle and lambs in combination with stilbestrol and oxytetracycline. Reports on use of tranquilizers in swine feeds have been negative. Eventually a tranquilizer may be found which will be beneficial in livestock rations. Tranquilizers are being used experimentally and in some cases in practical livestock operations to reduce stress periods in animal life.

TURKEYS

(Continued from page 1)

17 bidders. Bidders received prices ranging from 33.59¢ to 35.94¢ per pound. About $1.5 million of funds transferred by Congress from Section 32 for use under the National School Lunch Act were spent for the Sept. 24 purchase.

Bids were considered only from vendors operating under USDA inspection in order that the turkeys purchased may be shipped in interstate commerce. USDA accepted only offerings of turkeys weighing 12-24 lb. in ready-to-cook weights.

Vote Against Union

IDA GROVE, IOWA — Consumers Cooperative Feed Mill employees at Ida Grove voted recently by a margin of one vote not to join the Hod Carriers union, local 427 of Sioux City, Iowa.

Fifteen of 16 eligible persons voted, with eight against unionization, seven for it and one abstaining.

New Generic Name Coined for Antioxidant

ST. LOUIS—The Monsanto Chemical Co. announces that it has coined a new generic name for its antioxidant in order to make it easier to use identification of the compound on feed labels.

The active ingredient in this antioxidant, trademarked Santoquin, is 1, 2 - dihydro - 6 - ephoxy - 2, 2, 4 - trimethylquinoline. The new generic name which has been coined is ephoxyquine. Monsanto is using and suggesting use of both names on labels until the new name has become established, when the longer, full name can be dropped.

This is in line with Food and Drug Administration advice that feed labels must continue to show the full chemical name until "it has been established that ephoxyquine is recognized as the common name for this chemical antioxidant."

Monsanto labels on shipping containers will carry the full chemical name and then the new generic name in parentheses, along with the tradename Santoquin.

The company is urging users of the antioxidant to carry both the full and shorter names on their feed labels. Through this practice, it is hoped that at an early date regulatory officials will recognize ephoxyquine as the commonly accepted generic name.

State feed control officials also are being notified of the FDA ruling on use of the name ephoxyquine.

WAREHOUSE DESTROYED

HALF MOON BAY, CAL. — The warehouse of the Half Moon Bay (California) Feed & Fuel Co. was destroyed by a fire recently. Joseph Marsh, owner, estimated the loss at about $35,000.

TOP OF THE HOPPER

(Continued from page 2)

cattle feeding, particularly as the use of complete mixed rations, often pelleted, in large operations increases.

THERE'S AN OLD LAW OF PHYSICS to the effect that for every action there is an equal and opposite reaction. Sometimes, it seems, the feed industry follows this law. At any rate, it would seem to be an industry of counter trends, with one trend in one direction and another trend in another direction. The situation is too complex to simplify easily, but the premix and complete feed questions may be a case in point.

On the one hand, there has been the increased sale and use of complete feeds, usually pelleted, which are put directly into bins and feeders. The nutritional, labor-saving and other aspects of this system have frequently been pointed out.

At the same time, there are reports of a real increase in the use of premixes and on-the-farm mixing among poultry and livestock operators. Premix firms as well as others have noted trends in this direction.

In between are reported increases in use by local mills of premixes and "super concentrates," supplied by feed manufacturers and others, as well as conventional concentrates or supplements which include the protein.

It all boils down to economics, of course, and probably the only definite statement is that the economics will differ from one case to another.

THE GRAIN BANK SYSTEM where farmers deposit their grain in local mills for later grinding and mixing has shown a tremendous increase. Now, some people indicate, there has been an increase in the modification where the mills buy the grain instead of just storing it. Generally, the grain bank system has involved the farmer's depositing the grain and the mill's keeping a running balance as grain is withdrawn and used. Because of state warehouse laws and other reasons, some mills have bought the grain and then sold grain back along with supplement or as complete feed. Currently, it is reported, more mills are following this or an exchange system because of storage, simplicity, legal or other reasons.

AIRLINE HOSTESSES may not generally be the source of cogent observations on the feed industry scene. But a reflection of the changes and problems in the industry may be found in some questions of a hostess who is the fiancee of a young feed man and was asking a group of feed men-passengers about the business into which she is marrying: "Do they really know what they are doing? Things seem to be changing all the time. Are they really making any money? Do they know what all those things they put into the feed are for? I can't even pronounce the names."

AN AGRICULTURAL ENGINEER who has been running research on pellets and wafers for ruminants says that developmental work on field wafering or pelleting machines is being carried on by at least 10 firms. He looks for field wafering units to be on the market in two or three years.

The FEED MARKET

PRICE QUOTATIONS, MARKET TRENDS
OF PRINCIPAL INGREDIENTS

A AND D FEEDING OIL

Boston: Demand and supply steady; 600 D, 1,500 A 17½¢ lb.; 400 D, 3,000 A 20¢; 300 D, 3,000 A 19½¢; 300 D, 2,250 A 18¢; 300 D, 1,500 A 16½¢; 300 D, 750 A 14¾¢; 75 D, 750 A 14½¢.

Denver: Demand fair; trend steady; supply ample; 2,250 A, 300 D 22¢ lb., f.o.b. Denver.

Minneapolis: Demand fair; supply ample; 10,000 A 34½¢ lb.; 300 D, 2,250 A 19¢ lb.; 300 D, 1,500 A 17½¢ lb.; 300 D, 750 A 16¢ lb.

Chicago: Demand fair; trend steady; supply ample; straight A feeding oil, with 10,000 units vitamin A per gram, 7@7¼¢ a million units of vitamin A, l.c.l., packed in 55-gal. drums, f.o.b. Chicago, drums included.

New York: Demand and supply good; trend firm; price per lb. in 55-gal. drums (413 to 420 lb.): 300 ICU, 750 A 13½@15½¢, 1,500 A 15½@17¢, 2,250 A 17½@20¢, 3,000 A 19@21¢; 600 ICU, 1,500 A 16@18¢, 2,250 A 18@19½¢; f.o.b. Massachusetts, New York or Pennsylvania.

ALFALFA MEAL

Boston: Demand fair; supply adequate; dehydrated, 17% $60; suncured, 13% $48.50.

Omaha: Demand fair; trend steady; supply ample; 17% dehydrated, 100,000 A units, bulk pellets $44; sacked meal $49, Omaha basis.

Denver: Demand good; trend strong; supply ample; dehydrated $50, Denver.

Memphis: Demand fair; trend steady; supply ample; dehydrated, 17% protein, guaranteed 100,000 units vitamin A $52.50.

New Orleans: Demand steady; trend firm; supply adequate; vitamin A, 17% $58@59; pellets $53@54.

Portland: Demand good; supply ample; trend unchanged; 15% suncured $42; dehydrated $54.40.

Ft. Worth: Demand fair; supply adequate; dehydrated, 17%, 100,000 A $57.80 rail, $57 truck; suncured 13% ¼-in. grind No. 1 $43 truck.

Philadelphia: Demand and supply fair; 17% dehydrated $62.50.

Cincinnati: Demand fair; trend higher; supply adequate; 17% dehydrated, 100,000 vitamin A $62.50.

Seattle: Demand fair; trend steady; supply good; 15% protein suncured $45, delivered, truck loads; 136,000 A unit dehydrated $68, delivered, truck loads.

Los Angeles: Demand fair; trend unchanged; supply not too plentiful; dehydrated meal, 17% protein, 100,000 A $51@52, bulk; dehydrated pellet meal, 17% protein, 100,000 A $53@54, bulk; suncured meal, 15% protein $45@46, bulk; suncured crumbles, 15% protein $47@48, bulk.

Minneapolis: Demand good; supply adequate; trend strengthened late in week, building up to $2 ton increase; 17% dehydrated, 100,000 units vitamin A, reground pellets $50, bulk, Minneapolis; oiled reground pellets $52, bulk, sacks $4 more.

Chicago: Demand improved; trend higher; supply moderate; 17% protein, dehydrated, with 100,000 units vitamin A guaranteed $55.50, carlots.

St. Louis: Demand good; trend firm; supply limited; suncured, 13% fine $46; dehydrated, 17%, 100,000 A, demand fair, trend firm, supply ample $54.

Buffalo: Demand fair; trend steady; supply fair to good; $61, Boston.

Kansas City: As the end of the producing season nears, the market grows stronger; indications were that prices would advance $2 next week; recent rains have come too late to do fall production much good; some export business reported this week for the September-December period at firm prices; dehydrated meal with 17% protein and 100,000 units of vitamin guaranteed on arrival $49, sacked ($2 advance expected next week); reground pellets $49, sacked; pellets $44, bulk; dehydrated alfalfa with 18% protein and 125,000 A $4 higher; with 20% and 150,000 A $10 over 17% 100,000 A; suncured alfalfa meal demand is fair with supplies light, No. 1 fine ground $40.50@41.50, No. 1 ¼-in. $39@39.50, No. 2 ¼-in. $37, sacked.

ANIMAL FAT (STABILIZED)

Boston: Demand slow; supply plentiful; tallow 6¾¢ lb.; yellow grease 5½¢ lb.

Ogden: Supply normal; 6¢ lb.

San Francisco: Demand fair; supply ample; bleachable fancy 6¾¢ lb.; yellow grease 5¼¢ lb.

New Orleans: Demand fair; trend steady; supply adequate; 6@6½¢ lb., tank cars.

Ft. Worth: Demand good; supply moderate; prime tallow, tank cars, 6¢ lb.; drums 8½¢ lb.; f.o.b. north Texas packing plants with returnable drums.

Louisville: Demand good; trend steady; supply good; bleachable white 6¢ lb.; white tallow 6½¢ lb.; yellow grease 5¾¢ lb.

Atlanta: Demand fair; trend steady; supply ample; 5½@5¾¢ lb., f.o.b. Georgia and Alabama producing mills.

Chicago: Demand good; trend firm; supply ample; bleachable fancy tallow $6.75 cwt., yellow grease $6.37½ cwt., tank truck or carlots.

St. Paul: Demand very good; supply ample; trend firm; bleachable fancy tallow 6¾¢ lb., f.o.b. producer's plant.

Kansas City: Demand slow; trend firmer; supply adequate; feed demand shows no improvement, but market generally up ½¢ lb.; bleachable white tallow 6½¢ lb.

BARLEY FEED

Philadelphia: Demand slow; supply fair; $46.

Boston: Demand slow; supply adequate; domestic $41; Canadian $44.

Denver: Demand and trend steady; supply adequate; rolled $1.90 cwt.

NOTE: Quotations on feed ingredients shown in these and adjoining columns are wholesale prices, per ton, bagged, for prompt delivery, unless otherwise noted. They are the latest quotations available from Feedstuffs correspondents and are not necessarily those in effect on date of publication. The prices represent fair average trading values and do not necessarily represent extreme low or high levels at which individual sales might have occurred. A descriptive summary of supply and demand factors prevalent in the feed market appears on page 2.

Milwaukee: Demand good; supply fair; needles 90¢@1.03 cwt.; ground screenings $25.

Ogden: Supply normal; rolled $46@51; whole barley $38@43.

San Francisco: Demand fair; supply ample; rolled $56.50; ground $55.50.

New Orleans: Demand slow; trend unchanged; supply ample; $52@53.

Portland: Demand good; supply ample; trend unchanged; rolled $56; ground $54.

Los Angeles: Demand fair; trend unchanged; supply ample; standard rolled $3.03 cwt.; standard ground $3.03 cwt.

Seattle: Demand and supply good; trend firm; $47, bulk, truck loads.

Baltimore: Demand fair; trend firm; supply adequate; $45.50, carlots.

Chicago: Demand fair; trend steady; supply ample; $35, carlots.

BENTONITE (SODIUM)

Denver: Demand fair; trend good; supply ample; $21.

Cincinnati: Demand steady; supply adequate; f.o.b. Cincinnati, minimum 30-ton carlots: 80 granular $31.50; 200 mesh fine $31.

Chicago: Demand fair; trend steady; supply ample; f.o.b. Wyoming and South Dakota shipping points: granular, 30 mesh $16.50; fine granular, 80 to 100 mesh $13.75; powder, 200 mesh $13.50, f.o.b. Belle Fourche, S.D., minimum 30-ton carlots, 80 granular $13.50 net; 200 mesh, fine $13.25 net.

BLOOD FLOUR

Louisville: Demand slow; trend firm; supply good; $80@85.

BLOOD MEAL

Omaha: Demand good; trend strong; supply short; $105, Omaha basis.

Ogden: Supply average; $92.50 ton in 100-lb. bags, f.o.b. Ogden.

San Francisco: Demand fair; supply ample; $8 a unit of ammonia.

New Orleans: Demand dull; trend steady; supply adequate; $80@85.

Portland: Demand good; supply ample; trend unchanged; $115.

Los Angeles: Demand good; trend steady; supply adequate; $5.50 a unit of ammonia.

Chicago: Demand fair; trend firm; supply good; guaranteed 80% protein $120 ton, carlots, 100-lb. bags.

Louisville: Demand slow; trend steady; supply good; $80@85.

BONE MEAL (STEAMED)

Boston: Demand and supply steady; $100.

New Orleans: Demand fair; trend easy; supply ample; $80@85.

Portland: Demand good; supply ample; trend unchanged; $102.

Denver: Demand good; trend firm; supply tight; $106.70, Denver.

San Francisco: Demand good; supply ample; $75.

Ft. Worth: Demand good; supply moderate; $90, f.o.b. Ft. Worth, local manufacture.

Cincinnati: Demand good; trend strong; supply fair; $105, Cincinnati.

Los Angeles: Demand slow; trend unchanged; supply adequate; imported $78, 20-ton lots.

Seattle: Demand good; trend firm; supply limited; $90, delivered, truck lots.

Buffalo: Demand good; trend steady; supply limited; $105.

Chicago: Demand and supply fair; trend unchanged; $97.50 ton, carlots, 100-lb. bags.

Louisville: Demand dull; trend steady; supply light; $80@85.

BREWERS DRIED GRAINS

Milwaukee: Demand good; supply fair; $43.

Boston: Demand steady; supply adequate; 26% $51; 24% $50.

New Orleans: Demand fair; trend easy; supply ample; $50@55.

Philadelphia: Demand and supply fair; $51.50.

San Francisco: Demand fair; supply ample; $54.

Ft. Worth: Demand slow; supply sufficient; 26% protein $50@51, September-October, delivered Ft. Worth.

Cincinnati: Demand poor; trend steady; supply adequate; $47.

Louisville: Demand fair to good; trend firm; supply ample; $47.

St. Louis: Demand good; trend strong; supply adequate; $43.

Los Angeles: Demand slow; trend unchanged; supply adequate; $49.50 bulk, $53.50 sacked.

Buffalo: Demand and supply fair; trend steady to higher; $42.50, bulk, Boston.

Chicago: Demand and supply fair; trend easier; 26% protein $42, carlots.

BREWERS DRIED YEAST

Portland: Demand good; supply ample; trend unchanged; 8½¢ lb.

Boston: Demand and supply steady; 11¢ lb.

Denver: Demand light; trend steady; supply ample; 8¢ lb., f.o.b. Golden, Colo.

Omaha: 10½¢ lb.

San Francisco: Demand fair; supply good; 10¢ lb.

Cincinnati: Carlots 10¢ lb.; 5-ton lots 11¢ lb.; ton lots 11½¢ lb.

Seattle: Demand slow; trend steady; supply ample; $12 cwt.

Milwaukee: Demand fair; trend steady; supply adequate; 10@11¢ lb., carlots; 10½@12¼¢ lb., l.c.l.

Chicago: Demand fair; trend steady; supply ample; 9½@10½¢ lb., carlots; 9¾@12¼¢ lb., l.c.l.

St. Louis: Demand fair; trend steady; supply adequate; 9½@10¢ lb., carlots; 10½¢ lb., ton lots; 11½¢ lb., less than ton lots.

Pittsburgh: Carlots 10¢ lb.; 5-ton lots 11¢ lb.; ton lots 11½¢ lb.

New Orleans: Carlots 10¢ lb.; 5-ton lots 11¢ lb.; ton lots 11½¢ lb.

New York: Carlots 9½¢ lb.; 10-ton lots 10¢ lb.; 5-ton lots 10½¢ lb.; ton lots 11¢ lb., f.o.b. New Jersey.

Los Angeles: Demand slow; trend unchanged; supply adequate; 10¢ lb., 5-ton lots; 11¢ lb., 1-ton lots; 12¢ lb., less than 1-ton lots.

Buffalo: Demand good; trend firmer; supply limited; $9.75 cwt.

Louisville: Demand slow; trend steady; supply good; 10@10½¢ lb.

BUTTERMILK-CONDENSED

Ogden: Supply average; $4.40, 100-lb. drum.

Boston: Demand slow; supply tight; 3¾¢ lb.

New Orleans: Demand slow; trend unchanged; supply adequate; $4.25@4.30 cwt.

San Francisco: Demand fair; supply good; $5 cwt.

Philadelphia: Demand and supply fair; $4.25 cwt.

Los Angeles: Demand slow; trend unchanged; supply adequate; 5½¢ lb., 100-lb. lots; 4½¢ lb., 500-lb. lots.

Chicago: Demand quiet; supply fair; trend unchanged; $3.25@3.50 cwt., carlots.

Louisville: Demand dull; trend steady; supply nil; $4.25 cwt., nominal.

CALCITE CRYSTALS AND FLOUR

(All prices net, including freight)

New York: Crystals $15.28, flour $10.28.
Buffalo: Crystals $16.11, flour $11.11.
Toledo: Crystals $17.96, flour $12.96.
Boston: Crystals $16.53, flour $11.63.
Limecrest, N.J.: Crystals $10.50, flour $5.50.

CALCIUM CARBONATE

Cincinnati: Demand fair; trend steady; supply adequate; $8@9 cwt.

Chicago: Demand fair; trend steady; supply ample; fine grind, plain, 100-lb. bags $9.54; bulk, in hopper cars $7.54; bulk, in boxcars $8.04; granular grind $1 premium.

Minneapolis: Fine grind, 50-lb. bags $12.25, 100-lb. bags $11.50; bulk, boxcar $10; bulk, hopper $9.50; coarse grind $1 premium, delivered Minneapolis.

Seattle: Demand and trend steady; supply good; $14, ex-warehouse, truck lots.

Los Angeles: Demand slow; trend steady; supply adequate; flour $10.15 in 20-ton cars; meal $11.15 in 20-ton cars.

CHARCOAL

Boston: Demand and supply steady; $110.

San Francisco: Demand steady; supply ample; $141.

Los Angeles: Demand slow; trend unchanged; supply adequate; hardwood poultry: $156, less than ton lots; $144.40, ton lots.

Chicago: Demand and supply fair; trend steady; $110, carlots, in 50-lb. multiwalls.

COCONUT OIL MEAL

San Francisco: Demand good; supply tight; solvent $69.

Portland: Demand good; supply ample; trend unchanged; $71.

Seattle: Demand fair; trend firm; supply ample; $82, delivered, truck (California).

Los Angeles: Demand slow; trend weaker; supply adequate; copra cake $70, bulk.

COD LIVER OIL (FORTIFIED)

Boston: Demand and supply steady; 600 D, 2,250 A 19¢ lb.; 600 D, 1,500 A 18¢; 300 D, 3,000 A 20½¢; 300 D, 2,250 A 18½¢; 300 D, 1,500 A 17¢.

New York: Demand and supply good; trend firm; price per lb. in 55-gal. drums (413 to 420 lb.): 300 ICU, 750 A 14½@15½¢, 1,500 A 18½@20¢, 2,250 A 18½@21¢, 3,000 A 21½@23¢; 500 ICU, 1,500 A 17½@19½¢, 2,250 A 20@22¢, 3,000 A 22@23¢; f.o.b. Massachusetts, New York or Pennsylvania.

CONDENSED FISH SOLUBLES

Boston: Demand and supply good; 4½¢ lb.

Denver: Demand fair; trend steady; supply ample; dried $167, Denver.

New Orleans: Demand light; trend easy; supply normal; $65@70, f.o.b. Gulf.

Los Angeles: Demand slow; trend unchanged; supply adequate; 4¢ lb.

New York: Demand poor; trend steady; supply tight; 2¾@3¢ lb., f.o.b. eastern shore.

CORN GLUTEN FEED AND MEAL

(All quotations for all cities are sacked basis, bulk basis $5 less)

Minneapolis: Feed $44.90, meal $62.90.
Atlanta: Feed $50.98, meal $65.98.
Birmingham: Feed $49.64, meal $67.64.
Boston: Feed $49.84, meal $67.84.
Chicago: Feed $38, meal $56.
Cleveland: Feed $46.14, meal $64.14.
Denver: Feed $48.51, meal $66.51.
Ft. Worth: Feed $46.96, meal $64.96.
Indianapolis: Feed $43.36, meal $61.36.
Kansas City: Feed $38, meal $56.
Louisville: Feed $45.21, meal $63.21.
New Orleans: Feed $48.20, meal $66.20.
New York: Feed $50.43, meal $67.43.
Norfolk: Feed $48.71, meal $66.71.
Philadelphia: Feed $49.02, meal $67.02.
Pittsburgh: Feed $46.96, meal $64.96.
St. Louis: Feed $38, meal $56.
Decatur, Ill.: Feed $31.75, meal $52.75.

CORN OIL MEAL

Cincinnati: Demand fair; trend steady; supply adequate; $44.50.

Louisville: Demand dull; trend steady; supply light; $47.45.

COTTONSEED OIL MEAL

Memphis: Demand quiet; trend steady; supply ample; prime 41% protein, old process $55.50; new process, 41% solvent $53.

Wichita: Demand fair; supply sufficient; 41% old process $67.

Denver: Demand fair; trend steady; supply ample; 2% fat $63.40, Denver.

Boston: Demand very slow; supply ample; $73.

Omaha: Demand fair; trend steady; supply ample; 41% solvent $57.70, bulk, delivered Omaha.

San Francisco: Demand good; supply tight; 41% $75; 44% $78.

Portland: Demand slow; trend lower; supply ample; $72.

Ogden: Supply average; 41% $80@85.

New Orleans: Demand slow; trend steady; supply adequate; $68@68.50.

Ft. Worth: Demand good; supply sufficient; 41% old process $60; solvent 1% fat added $58.90; pellets $2 additional; cottonseed hulls $17.

Philadelphia: Demand and supply fair; trend unsettled; $67.

Cincinnati: Demand fair; trend steady; supply adequate; $60.

Chicago: Demand good; trend higher; supply ample; hydraulic $55.50, solvent $52.50, carlots, Memphis basis.

St. Louis: Demand good; trend firm; supply adequate; solvent $57.50.

Los Angeles: Demand fair; trend steady; supply adequate; $64, bulk.

Seattle: Demand fair; trend strong; supply ample; 41% expeller process $77, delivered, truck.

Atlanta: Demand fair; trend steady; supply ample; 41% $57, delivered.

Kansas City: Demand fair in this area, but apparently improved interest on old process meal from retailers and cattlemen; mixers not much interested in solvent and two types are widening in spread; old process $56@57, solvent $48.50@53, sacked, Memphis.

Buffalo: Demand poor; trend steady; supply fair; $73.75, Boston.

Louisville: Demand slow; trend steady; supply normal; old process $61; new process $59.

CURACAO PHOSPHATE

New York: Trend steady; ground Curacao phosphate in 100-lb. bags $48, f.o.b. cars or trucks, New Orleans, Jacksonville, Fla., or Philadelphia.

D ACTIVATED ANIMAL STEROL (POWDERED)

Cincinnati: Demand fair; trend steady; supply ample; 1,500 ICU 11@12¢ lb.; 3,000 ICU 18¢ lb., warehouse.

Kansas City: Demand fair; trend steady; supply adequate; 1,500 ICU 9¾¢ lb.; 3,000 ICU 11½¢ lb.

New York: Demand and supply good; trend firm; price per lb. in 50- and 100-lb. bags, or 100-lb. drums: 1,500 ICU 8@12¢ bagged, 12@13¢ drums; 3,000 ICU 13@17¢ bagged, 17@18¢ drums; f.o.b. or delivered basis Pennsylvania, Delaware or New York.

D ACTIVATED PLANT STEROL (POWDERED)

Chicago: Demand fair; supply ample; 4,000,000 U.S.P. units per lb., 15¢ lb. in ton lots, less than ton lots 17¢ lb.; 12,000,000 units per lb., 5 tons to a carload 28¢ lb., ton lots and less 30¢ lb.

DEFLUORINATED PHOSPHATE

Houston: Minimum phosphorus 19%, minimum calcium 32%, maximum calcium 35%, maximum fluorine .19% $71.50 net ton, f.o.b. Houston, 100-lb. multiwall paper bags, $68.50 in bulk.

Tupelo, Miss.: Minimum phosphorus 13%, minimum calcium 31%, maximum fluorine .12%, $51 net ton, f.o.b. Tupelo in 100-lb. multiwall bags, $48 in bulk.

Wales, Tenn.: Minimum phosphorus 18%, minimum calcium 33%, maximum calcium 36%, maximum fluorine .18% $69.12 net ton, f.o.b. Wales in 100-lb. multiwall bags, $3 less in bulk.

Coronet, Fla.: Minimum phosphorus 18%, minimum calcium 31%, maximum calcium 34%, maximum fluorine .18%; carlots $63.50, truck load $64.25, net ton, f.o.b. Coronet in 100-lb. multiwall bags; $60.50 and $57.50 in bulk.

Cincinnati: 18% phosphorus $81; 13% phosphorus $64.98, f.o.b. Cincinnati.

DICALCIUM PHOSPHATE

Chicago: Stock food grade, 18.5% phosphorus, 20,000 lb. or more $83.25 net ton in 100-lb. papers, basis Chicago Heights, Ill., or Nashville, Tenn.; less than 20,000 lb. $93.25; 21% phosphorus, 20,000 lb. or more $94.50, basis Chicago Heights and Nashville; less than 20,000 lb. $104.50; bulk boxcars or hoppers $8 net ton less than bagged material.

Bonnie, Fla.: Minimum phosphorus 18½%, granular $83.25; freight equalized with closest producing point, carload basis.

Texas City, Texas: 18.5% minimum phosphorus, 21% minimum calcium, 24% maximum, granular $77.70 net ton, f.o.b. Texas City in 100-lb. multiwall bags; bulk, boxcars and hoppers, $3 net ton less than bagged materials.

Columbia, Tenn.: Minimum phosphorus 18½%, minimum 25% calcium, maximum .01% fluorine guaranteed $83.25, f.o.b. Columbia, in 100-lb. multiwall bags; freight equalized with nearest producing point, carload basis; bulk $3 ton less.

Portland: Demand good; supply ample; trend unchanged; $115.

Denver: Demand fair; trend steady; supply ample; $97.60, delivered in Denver.

Cincinnati: 18½% phosphorus $92@93.

DISTILLERS DRIED GRAINS

San Francisco: Demand fair; supply ample; solubles $85.

Boston: Demand slow; supply ample; light $53, dark $54.
Cincinnati: Demand poor; trend steady; supply adequate; $47.50.
Seattle: Demand good; trend steady; supply limited; $68.50, delivered, truck lots.
Buffalo: Demand and supply fair; trend steady; $50, bulk, Boston.
Louisville: Demand fair; trend easy; supply light; bourbon grains: light $45@46, dark $49@50, solubles $77.

DRIED BEET PULP

New Orleans: Demand fair; trend unchanged; supply adequate; $54@55.
Portland: Demand good; supply ample; trend unchanged; $56.40.
Denver: Demand good; trend steady; supply adequate to meet commitments only; $49.23, delivered in Denver.
Milwaukee: Demand good; supply fair; plain $43; molasses $43.
Boston: Demand and supply steady; $51.
Ogden: Supply nominal; $44@48.
San Francisco: Demand good; supply fair; $42.80, bulk.
Ft. Worth: Demand slow; supply moderate; carlots, 50-lb. papers $49.20, immediate or October-November-December, delivered Ft. Worth.
Seattle: Demand good; trend easy; supply limited; $50, delivered, carlots.
Los Angeles: Demand fair; trend unchanged; supply adequate; $47.80@48.60.
Atlanta: Demand fair; trend steady; supply limited; $54.50, delivered.
Buffalo: Demand fair; trend steady; supply adequate; $51, Boston.

DRIED BUTTERMILK

Milwaukee: Demand and supply fair; $10.50 cwt.
Ogden: Supply average; $8.50 per 100-lb. bag.
San Francisco: Demand fair; supply ample; 11½¢ lb.
New Orleans: Demand fair; trend easy; supply good; $11@11.25 cwt.
Chicago: Demand fair; trend firm; supply adequate; medium acid $10.75@10.85 cwt., sweet cream $11@11.25 cwt., carlots.
Los Angeles: Demand slow; trend unchanged; supply adequate; 12¢ lb.
Buffalo: Demand good; trend steady; supply limited; $11.95 cwt.
Louisville: Demand good; trend very firm to strong; supply light; 11½@12¢ lb.

DRIED CITRUS PULP

Boston: Demand fair; supply adequate; $51.
San Francisco: Demand and supply fair; meal $49.
New Orleans: Demand fair; trend easy; supply normal; $35@40, f.o.b. Florida points.
Atlanta: Demand fair; trend weak; supply good; $30@32.50, f.o.b. Florida producing mills.
Los Angeles: Demand steady; trend unchanged; supply not too plentiful; orange pulp $41, bulk; lemon pulp $40, bulk.
Buffalo: Demand poor; trend steady; supply adequate; $32.50, f.o.b. Florida points.

DRIED SKIM MILK

Ogden: Supply average; $15.15 per 100-lb. drum.
Milwaukee: Demand and supply fair; $10.50 cwt.
New Orleans: Demand dull; trend unchanged; supply ample; $11@11.50 cwt.
San Francisco: Demand and supply fair; 13½¢ lb.
Philadelphia: Demand and supply fair; $12.50 cwt.
Portland: Demand good; supply ample; trend unchanged; 13¢ lb.
Boston: Demand good; supply light; 12¢ lb.
Cincinnati: Demand fair; trend steady; supply adequate; 10½@10¾¢ lb.
Minneapolis: Demand good; supply tighter; trend strong; $11 cwt.
Los Angeles: Demand slow; trend unchanged; supply adequate; 14¢ lb., less than ton lots; 13¾¢ lb., ton lots.
Buffalo: Demand fair; trend steady; supply limited; spray $10.65 cwt.
Chicago: Demand slow; trend steady; supply ample; $10.50@10.75 cwt., carlots.
Louisville: Demand fair; trend steady; supply ample; 11½@12¢ lb.

DRIED WHEY

Portland: Demand good; supply ample; trend unchanged; $6.80 cwt.
San Francisco: Demand steady; supply good; $5.75 cwt.
Denver: Demand fair; trend steady; supply ample; $6.50 cwt.
Ogden: Supply normal; $6.90 per 100-lb. bag.
Wichita: Demand light; supply ample; $6.50 cwt.
Boston: Demand steady; supply fair; 5½¢ lb.
New Orleans: Demand good; trend easy; supply ample; $6@6.50 cwt.
Ft. Worth: Demand fair; supply adequate; carlots, standard $6, sacked, delivered Ft. Worth; $6.25, ton lots, f.o.b. warehouse, Ft. Worth.
Philadelphia: Demand and supply fair; $6.50 cwt.
Cincinnati: Demand fair; trend steady; supply adequate; $6.15 cwt.
Los Angeles: Demand slow; trend unchanged; supply adequate; $6.10 cwt., carloads; $6.35 cwt., l.c.l.
Seattle: Demand and trend steady; supply good; $6.40 cwt., ex-warehouse, l.c.l.
Minneapolis: Demand fair; supply ample; trend steady; 40 mesh $5.65 cwt.; standard $5.50 cwt., producer's plant.
Chicago: Demand quiet; trend steady; supply ample; $5.50@5.70 cwt., carlots, f.o.b. plant.
Kansas City: Demand fair; trend steady; supply lighter; regular or partially delactosed $5.50 cwt., producer's points.
Louisville: Demand slow; trend steady; supply ample; 6½¢ lb.

FEATHER MEAL (HYDROLYZED)

Boston: Demand quiet; supply scarce; $85, nominal.
Ft. Worth: Demand fair; supply moderate; 85% to 87% protein $80@82.50, f.o.b. trucks, north Texas plants.
Salisbury, Md.: Demand spotty; supply ample; $88, bulk, f.o.b.
Los Angeles: Demand slow; trend unchanged; supply adequate; $1 a unit of protein.
Atlanta: Demand fair; trend steady; supply ample; $81@83, f.o.b. Georgia and Alabama producing mills.

FISH MEAL

Boston: Demand and supply steady; $130, f.o.b. Gloucester.
Portland: Demand good; supply ample; trend unchanged; $2.05 a unit.
Denver: Demand fair; trend steady; supply ample; $2.15 a unit of protein, f.o.b. West Coast.
Ogden: Supply normal; $2.20 a unit, f.o.b. Coast; 65% $176@178.
Omaha: Demand fair; trend improving; supply ample; 60% menhaden $140.
Milwaukee: Demand good; supply fair; 60% $159.50, Milwaukee.
San Francisco: Demand slow; supply ample; $1.90 a unit of protein.
New Orleans: Demand fair; trend steady; supply good; menhaden, 60% $128@132; scrap $124@126, f.o.b. Gulf.
Ft. Worth: Demand fair; light offerings on menhaden, sufficient on Peruvian; 60% menhaden $139, prompt; 65% Peruvian $137, first half October, subject to outcome of threatened longshoremen's strike, delivered Ft. Worth.
Cincinnati: Demand fair; trend steady; supply adequate; $160.
Los Angeles: Demand slow; trend weaker; supply adequate; local production, 60% protein $2 a unit, nominal.
Seattle: Demand and supply good; trend steady; $2.10 a unit protein, ex-dock (Alaskan).
Buffalo: Demand just fair; trend steady; supply ample; 60% protein menhaden $140 bulk, $145 sacked.
Chicago: Demand quiet; supply ample; eastern menhaden $120@125 and scrap $116@121, carlots; Gulf menhaden $128@130 and scrap $124@126.
Minneapolis: Gulf menhaden demand good, supply adequate, trend steady $146@147; 60% blended, demand fair, supply ample, trend off slightly to steady $149@154; 70% herring, demand good, supply adequate, trend firm $2 a unit, f.o.b. West Coast.
Atlanta: Demand fair; trend steady; supply good; 60% menhaden $122@123, f.o.b. Atlantic ports.
Louisville: Demand slow; trend steady; supply light; $145@150.

HAY

Portland: Demand good; supply ample; trend unchanged; $34.
Wichita: Demand good; supply sufficient; prairie $17.50; alfalfa $20@22.50.
Boston: Demand fair; supply ample; No. 2 timothy $41@44.
St. Paul: Demand fair; supply ample; excellent $10@30; good $8@25; fair $6@18.
Ogden: Supply average; $1.25@1.35 per bale; $25 ton in the field.
Ft. Worth: Demand fair for alfalfa, practically nil for prairie and Johnson grass; supply sufficient; carlots, baled, No. 1 alfalfa $36@38; No. 2 $34@36; No. 2 prairie $24@26; No. 2 Johnson grass $22@24, delivered Texas common points.
Denver: Demand and trend good; supply short; alfalfa, baled $30 on new hay, third cutting.
Philadelphia: Demand slow; supply light; $24@25.
Cincinnati: Demand poor; trend steady; supply adequate; No. 1 timothy $24; second cutting green alfalfa $30; mixed $27; wheat or oat straw $18@20.
Seattle: Demand good; trend strong; supply fair; alfalfa, U.S. No. 2 green $37, delivered, truck lots.
Los Angeles: Demand good for top quality, slow for lower grades; U.S. No. 1 $35@37; U.S. No. 2 leafy $32@33; U.S. No. 2 green $32@33; U.S. No. 2 $29@30.
Louisville: Demand dull; trend steady; supply good; No. 1 fancy hay, any variety $25@30, No. 2 $2@3 less; straw, any variety $20.

HOMINY FEED

Boston: Demand cautious; supply ample; $50.
Milwaukee: Demand good; supply fair; $38.50, Milwaukee.
Memphis: Demand nil; trend weak; supply ample; white $42, yellow $42.
Cincinnati: Demand fair; trend steady; supply adequate; $41.50.
New Orleans: Demand slow; supply ample; trend steady; $44@45.
Buffalo: Demand and supply fair; trend steady to higher; $45.50, bulk, Boston.
Seattle: Demand fair; trend steady; supply good; $55, delivered, carlots.
St. Louis: Demand good; trend higher; supply limited; yellow $41.
Kansas City: Demand good; trend firm; supply light; no white available due to flood shutdown of one nearby mill; yellow $35 bulk, $39.50 sacked.
Chicago: Demand better; trend higher; supply fair; $39.50@40, carlots.
Louisville: Demand slow; trend steady; supply ample; $44.50.

LINSEED OIL MEAL

New Orleans: Demand slow; supply ample; trend steady; $84.50@85.
Wichita: Demand fair; supply sufficient; 34% $89.20.
Ft. Worth: Demand slow; supply sufficient; 34% protein, solvent, truck $88.50; old process, truck $92.50.
Philadelphia: Demand slow; supply fair; 34% $88.50.
Boston: Demand very slow; supply spotty; 34% $87.50
Portland: Demand slow; supply ample; trend unchanged; $86.
Milwaukee: Demand good; supply fair; old process $83; new process $76.
Denver: Demand poor; trend steady; supply tight, small crop; $84.94, Denver.
Omaha: Demand easy; trend steady; supply ample; 34% solvent $71.30, bulk; 32% old process $80.30, Omaha basis.
San Francisco: Demand fair; supply ample; $77.50.
Cincinnati: Demand poor; trend steady; supply adequate; new process $84; old process $91.
Seattle: Demand fair; trend steady; supply limited; 34% protein (Montana) $90, delivered, carloads.
Los Angeles: Demand slow; trend unchanged; supply adequate; local production, 29% protein $71, bulk, October through December.
Kansas City: Demand fair; trend steady; supply moderate; $85.50@86, bulk, Minneapolis, solvent type meal.
Chicago: Demand less aggressive; trend easier; supply fair; Minneapolis basis, solvent $65, carlots; expeller $72.
Minneapolis: Export demand good; domestic demand fair; supply ample; new process $65.50 immediate, $68.50 balance of October-December; old process $72@72.50 nearby, $74.50 balance of October-December.
Louisville: Demand slow; trend steady; supply normal; old process $90.50; new process $84.50.

LIVER AND GLANDULAR MEAL

Omaha: Demand good; trend strong; supply tight; 65% $210, Omaha basis.

MALT SPROUTS

Milwaukee: Demand good; supply fair; oddweights $35; evenweights $38.
Boston: Demand and supply limited; $42.50.
New Orleans: Demand fair; trend steady; supply ample; $40@42.
Cincinnati: Demand fair; trend lower; supply adequate; No. 1 $42.
Chicago: Slight improvement in demand; trend higher; supply fair; No. 1 uneven bags $34, bulk $28, carlots.

MEAT AND BONE MEAL

Wichita: Demand good; supply sufficient; 50% $90, f.o.b. plant; 55%, no quotations, no offerings.
Boston: Demand steady; supply plentiful; $1.15 a protein unit; converted 50% $70.
Denver: Demand normal; trend steady; supply ample; 50% $77.50, truck lots; $75, bulk lots.
Ogden: Supply nominal; $87 ton, in 100-lb. bags.
Omaha: Demand good; trend good; supply ample; $82.50.
San Francisco: Demand fair; supply ample; $1.50 a unit of protein.
New Orleans: Demand slow; trend easy; supply ample; $81@86.
Ft. Worth: Demand fair; supply moderate; meat and bone, 50% $78@80, f.o.b. or delivered Ft. Worth.
Portland: Demand good; supply ample; trend unchanged; $1.40 a unit.
Cincinnati: Demand good; trend steady; supply fair; 50% meat and bone scraps $80, Cincinnati.
St. Louis: Demand fair; trend steady; supply adequate; $82.
Buffalo: Demand just fair; trend easier; supply ample; 50% meat scraps $72.50 bulk, $77.50 sacked.
Chicago: Demand fair; trend steady; supply adequate; 50% protein $85 ton, carlots, 100-lb. bags.
Los Angeles: Demand and trend steady; supply adequate; 50% protein $1.60 a unit, bulk.
Seattle: Demand good; trend steady; supply ample; $80, ex-warehouse, 50% protein.
Kansas City: Demand good; trend steady; supply adequate; 50% meat and bone meal $80, sacked, Kansas City.
New York: Demand and supply fair; trend steady; 50% $67.50, 55% $75, bulk; 50% $70.50, 55% $78, sacked.
Louisville: Demand dull; trend firm; supply good; $80@85.

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Kansas City, St. Louis, Chicago, Buffalo, Omaha, Toledo, Columbus, Fort Worth, Portland, Boston, Galveston, Enid, Minneapolis, Norfolk, San Francisco, Nashville, Louisville, Memphis, Houston

St. Paul: Demand fair; supply ample; $82@86.

MILLFEED

Minneapolis: Strong trend continues; prices firmer, especially for bulk middlings, in Northwest but still little behind strength shown in Southwest; middlings up about $1 ton from last week to $36.50; bran up about $1 at $35.50; red dog steady at $44.

Kansas City: Demand good, especially for sacked shorts; prices firm and spot offerings are light; some market observers expect postponement of dock strike to improve offerings and ease market; bran $33@33.75, shorts $42.50@43.25, sacked; bran $29@29.75, middlings $34.50@35.25, shorts $37.25@38.

Wichita: Demand good; supply insufficient; basis Kansas City: bran $32.75@33.25, shorts $42.75@43.25; bran advanced 50¢, while shorts were up $2.25, compared with the preceding week.

Ft. Worth: Demand fairly good; supply tight; carlots, burlaps, bran $41.50@42, gray shorts $52@52.50, bulk middlings $46, delivered Texas common points; unchanged to 50¢ lower on bran, $1@1.50 higher on shorts and $1 higher on middlings compared with previous week.

Chicago: Millfeeds generally were higher Sept. 30 with standard midds. up as much as $3 ton, bran up $2@2.50 and red dog doing better but lagging some on lighter weight feeds. Higher prices brought about by a general broadening in inquiry and sales and possible labor trouble among dock workers on the Gulf and East Coasts was bringing up the possibility of drying-up on flour exports which, in turn, could cause curtailed flour milling operations and smaller production of millfeed. Quotations, Chicago basis, per ton, carlots: Standard bran, sacked $39.50@41 and bulk $34; standard midds, sacked $41.50@42 and bulk $38; red dog, sacked $47.50@48.50 and bulk $44@44.50.

St. Louis: Sacked, bran $38.50@39, shorts $48@48.50; bulk, bran $34@34.50, shorts $42@42.50, middlings $39.50@40.

Cincinnati: Demand fair; trend higher; supply adequate; bran $42.50, middlings $45.50.

Omaha: Demand good; trend strong; supply tight; sacked bran $34; sacked gray shorts $44; bulk standard midds. $36, all Omaha basis.

Boston: Demand improved; supply spotty; bran $47, middlings $50.50.

Buffalo: Bran and middlings moved higher last week—not because of any curtailed supply or increased demand, but in sympathy with an aggressive rise in the West. Sacked differential on bran and middlings narrowed to $6 from $7.50 as country trade demand diminished. There was some buying done last week because consumers knew local levels wouldn't hold in view of western strength. The theratened dock strike on the East Coast and Gulf ports could bring a sharp price rise. If it materializes buyers would scramble for supplies and favorable shipping positions because flour embargoes might be imposed. Bulk bran ended $2.50 higher, sacked rose $1; bulk middlings gained $3 and sacked rose $1.50; bulk and sacked red dog advanced $1. Quotations Sept. 30: Bulk bran $32.50@34, sacked $38.50@40; bulk middlings $38.50@40.50, sacked $44.50@46.50; bulk red dog $44@45.50, sacked $49.50@52.

New York: Demand and supply good; trend upward; bran $44.50@45; standard midds. $50.50@51.

Philadelphia: Demand spotty; trend unsettled; supply fair; bran $46.50, standard midds. $49, red dog $56.

New Orleans: Demand fair; trend easy; supply ample; bran, sacked $43.50@44.25, bulk $38.50@39.25; shorts, sacked $51.50@52.25, bulk $45@45.75; bulk middlings $40.50@41.25.

Memphis: Demand fair; trend steady to higher; supply scarce to ample; wheat bran $40.80, sacked; gray shorts $50.80, sacked; standard midds. $40.70, bulk.

Louisville: Demand fair; trend strong; supply good; bran $44.10, up 50¢; mixed feed $49.10, up $1.50; gray shorts $54.10, up $2.80; standard midds. $47.30, up $3.

Seattle: Demand fair; trend steady; supply limited; $45, delivered, common transit points, carlots.

Portland: Demand slow; trend lower; supply ample; $41.

Ogden: Supply average; to Utah and Idaho: red bran and mill run $41, middlings $46; to Denver: red bran and mill run $48, middlings $53; to California: red bran and mill run $48.50, middlings $53.50, f.o.b. San Francisco and Los Angeles.

Denver: Demand active; trend steady to strong; supply adequate; shorts $46.25, bran $36.25, mill run $41.25.

San Francisco: Demand good; supply tight; millfeed $51; red bran $51.

Los Angeles: Standard mill run $47@47.50, bulk, good demand, trend firmer, supplies very limited for nearby; red bran $48@49, bulk, fair demand, firmer trend, supplies tight.

MINERAL FEED

Wichita: Demand good; supply sufficient; all-purpose with iodine, 50-lb. blocks $97.50, 100-lb. bags $92.50, f.o.b. plant.

San Francisco: Demand steady; supply good; all-purpose with iodine $70.

Portland: Demand slow; supply ample; trend unchanged; $45.

Ogden: Supply normal; $113 ton in 50-lb. blocks; $103 ton, granular, 50-lb. bags.

Denver: Demand fair; trend steady; supply ample; $155.

Ft. Worth: Demand good; supply sufficient; all-purpose granules $90, block $97; mineral phosphorus, 6% granules $106, block $113; cattle-sheep mineral, 7% phosphorus granules $100, block $107; hog mineral phosphorus, 3½% granules $87; phosphorus 2% $77 (all in 50-lb. paper bags).

Sioux City: 50-lb. mineral blocks 5.3% phosphorus $92; 7.5% phenothiazine sheep mineral blocks $4 each.

Seattle: Demand fair; trend steady; supply good; mixer mineral $48, ex-warehouse; all-purpose mineral $85, ex-warehouse.

MOLASSES

Memphis: Demand poor to good; trend weak to higher; supply ample; blackstrap 10¢ gal., tank car, f.o.b. New Orleans, and $24 ton, delivered Memphis, truck.

Minneapolis: Demand poor to fair; supply adequate; trend steady; $30.50, tank trucks, delivered.

New York: Demand fair; trend steady; supply good; blackstrap 16¢ gal., tank cars, tank wagons, f.o.b. New York.

Buffalo: Demand fair; trend steady; supply good; 16½¢ gal., f.o.b. Albany.

St. Louis: Demand slow; trend steady; supply ample; 10¢ gal., New Orleans.

Atlanta: Demand fair; trend weak; supply good; citrus $16@20, f.o.b. Florida producing mills.

Kansas City: Demand slow; trend easier; supply ample; 10¢ gal., tank cars, New Orleans, most generally quoted, although some say purchases can be made at 9½¢ gal.

Louisvile: Demand dull; trend steady; supply ample; 10¢ gal., tank car lots, f.o.b. Gulf ports.

Boston: Demand steady; supply plentiful; 16½¢ gal. in tank cars.

Denver: Demand fair; trend steady; supply ample; 10¢ gal., New Orleans; $17.10 ton, New Orleans; $20 ton, West Coast.

Ft. Worth: Demand slow; supply sufficient; blackstrap 11¢ gal., f.o.b. Houston; delivered Ft. Worth, truck $25.51, seller's market price on date of shipment.

San Francisco: Demand and supply good; $20, f.o.b. cars, Richmond, Cal.

New Orleans: Demand good; supply ample; trend steady; 10¢ gal., tank cars and trucks; 600-lb. customers' drums $7.05.

Cincinnati: Demand fair; trend steady; supply adequate; 10¢ gal., New Orleans.

Los Angeles: Demand good; trend unchanged; supply adequate; $20, bulk, f.o.b. tank cars; $20.25, bulk, f.o.b. tank trucks.

Seattle: Demand fair; trend easy; supply good; $20.25, f.o.b. Seattle, tank car lots or truck lots.

NIACIN

New York: Trend steady; $6 kilo, 10-kilo lots; $6.20 kilo, 5- and 2½-kilo lots; $6.30 kilo, 1-kilo lots; freight prepaid or paid to destination.

OAT PRODUCTS

Memphis: Demand poor; trend steady; supply ample; 3½% protein, reground oat feed $21.

Portland: Demand slow; supply ample; trend unchanged; rolled $65; ground $62; cleaned $64.

Boston: Demand fair; supply adequate; white pulverized $56; reground oat feed $24.

Ft. Worth: Demand fair; supply sufficient; 10% protein oat millfeed $39.50@40.50; reground $24@25, October.

Philadelphia: Pulverized whites, demand slow, supply fair $53; domestic, demand slow, supply light $25.50; Canadian oat feed, demand slow, supply light $26.50.

Cincinnati: Demand poor; trend steady; supply adequate; reground oats $30; pulverized white oats $55.

Minneapolis: Demand poor; supply ample; trend steady; feeding rolled oats up $1 from last week to $81; feeding oatmeal $68.50; standard pulverized $45.50; crimped $59; reground oat feed $23.

Louisville: Demand fair; trend steady; supply normal; reground $22.80; rolled $84.30; feeding $77.30; pulverized white $52.30; crimped $68.30.

Chicago: Demand steady; trend firm; supply fair; carlots, reground oat feed $15; No. 1 fine ground feeding oatmeal $79; feeding rolled oats $77@80.

Los Angeles: Demand slow; trend unchanged; supply fair; local production, pulverized $62.

Seattle: Demand and supply fair; trend strong; $54, bulk, delivered truck lots.

OYSTER SHELL

Boston: Demand and supply steady; in paper $26.

San Francisco: Demand fair; supply ample; local $15, eastern $26.

Portland: Demand good; supply ample; trend unchanged; western $34; eastern $39; granite grits $28; shell flour $24.

New Orleans: Demand and supply good; trend steady; $24@25.

Cincinnati: Demand fair; trend steady; supply adequate; $24.45.

Louisville: Demand good; trend steady; supply normal; 80-lb. paper bags $23.45; 50-lb. paper bags $23.70; 25-lb. paper bags $25.95.

Los Angeles: Demand slow; trend unchanged; supply ample; $14.80.

Seattle: Demand and trend steady; supply good; eastern $35, delivered, carlots.

PEANUT OIL MEAL

Atlanta: Demand fair; trend steady; supply limited; 45% $58, f.o.b. Alabama and Georgia producing mills.

Milwaukee: Demand and supply fair; 26% $41.50.

PEAT MOSS

Chicago: Demand and supply fair; trend steady; standard 7½ cu. ft. bales $3.80.

New York: Demand and supply fair; trend steady; Canadian 7 cu. ft. bale, veneer wrapped $3.32, f.o.b.; German 7½ cu. ft. bale $2.80, at dock, New York.

Portland: Demand slow; supply ample; trend unchanged; $3.30 a bale.

Boston: Demand and supply steady; $3.15 a bale.

Philadelphia: Demand slow; supply fair; $2.85 a bale, f.o.b. pier.

Los Angeles: Demand slow; trend unchanged; supply ample; Canadian 6.1 cu. ft. bales $3.75.

Seattle: Demand and supply good; trend firm; $2.80 a bale, delivered, truck lots.

POTASSIUM IODIDE, U.S.P.

Cincinnati: Demand good; trend steady; 90% KI in calcium stearate or carbonate mixtures: 250-lb. drums $1.35; 200 lb. in 100-lb. drums $1.36; 100-lb. drums $1.38; 25-lb. drums $1.41, f.o.b. Cincinnati.

POULTRY BY-PRODUCTS

Atlanta: Demand fair; trend steady; supply ample; $78@80.50, Georgia and Alabama producing mills.

Boston: Demand fair; supply light; $82.

Ft. Worth: Demand excellent; supply scarce; 55% protein $80@85, f.o.b. north Texas plants.

Salisbury, Md.: Demand good; supply ample; $90, f.o.b., bulk.

Los Angeles: Demand good; trend unchanged; supply adequate; $1.40 a unit of protein.

RIBOFLAVIN

New York: Trend steady; feed grade (in feed supplements) 4½¢ gm. in 3.36 to 16 gm. per lb. mixtures, freight prepaid or paid to destination.

Cincinnati: Trend steady; feed grade (in feed supplements) 4¢ gram, in less than ton lots in 3.36 to 16 gm. per lb. mixtures; 3¢ in ton lots or more; freight prepaid or paid to destination.

RICE BY-PRODUCTS

Atlanta: Demand fair; trend steady; supply very limited; $43@44, delivered.

San Francisco: Demand good; supply ample; bran $45; polished $49.

Ft. Worth: Demand slow; offerings light; carlots, rice bran $33@34, f.o.b. south Texas rice mills; hulls $3.50, f.o.b. mills.

Los Angeles: Demand slow; trend unchanged; supply very limited; California production, high fat content, bran $53, nominal.

SCREENINGS

Buffalo: Demand and supply fair; trend steady; ground, sacked $34, New York, lake and rail; unground, bulk $28.25, New York.

Chicago: Demand and supply fair; trend steady; ground screenings $30.50, carlots; Canadian $23.90.

Minneapolis: Little stronger demand, but supplies still limited; markets steady to $2 higher from last week; Canadian $21; flax screenings, basis 15% $40; lights $6@12; mediums $13@22; heavies $23@37.

Ft. Worth: Demand good; supply extremely limited; ground mixed grain $31.

Cincinnati: Demand fair; trend steady; supply adequate; oat screenings $19.

SOFT PHOSPHATE WITH COLLOIDAL CLAY

Atlanta: $20.40@20.67.
Buffalo: $25.31@25.45.
Chicago: $24.77@24.90.
Cincinnati: $23.47@23.60.
Des Moines: $25.23@25.35.
Kansas City: $24.88@25.
Memphis: $22.20@22.47.
Minneapolis: $25.92@26.06.
Philadelphia: $24.32@24.96.
St. Louis: $24.14@24.27.

SORGHUMS

Ft. Worth: Demand good; supply sufficient; carlots, bulk, No. 2 yellow milo $1.88@1.89, delivered Texas common points.

Los Angeles: Demand steady; trend weaker; supply ample; milo $2.05 cwt., bulk.

SOYBEAN OIL MEAL

Memphis: Demand good; trend strong; supply limited; prime 44% solvent $61, sacked, f.o.b. Memphis.

Atlanta: Demand fair; trend strong; supply ample; 44% $62, bulk, delivered.

St. Louis: Demand good; trend firm; supply tight; 44% $62.

Minneapolis: Wet weather, still holding up soybean harvest, combined with strong demand pushed price up another $3 this week; immediate $50, bulk, Decatur; $48.50@49 balance of October-December.

Kansas City: Demand fair; spot market supply is rather tight and firm after drop; not much interest in forward shipment as sellers are quoting about the same as spot prices and mixers expect discounts; some next week quotations $1.50 below spot; Kansas City and western shipment meal $54, bulk, Decatur; unrestricted $54.

Chicago: Gains in soybean oil meal during the week ending Sept. 30 matched very closely these scored in millfeeds. However, the possibility of a dock shutdown along the Gulf and East Coasts appeared to serve as a slight brake on the recoveries because bean processors might be building up their meal stocks. The substantial price bulge that took place seems to have developed as the result of too many buyers having over-stayed the market, the resultant demand found nearby offerings limited, with a $2@4 advance over prices a week ago. Quotations, Decatur basis, per ton, carlots: 44% protein, unrestricted billing $53@54 and eastern restricted $51@52.50; 50% protein, unrestricted $59 and eastern restricted $55@56.

Ft. Worth: Demand goood; supply sufficient; carlots: 44% $67.30, 50% protein $74.80, both October-November-December; truck: 44% $67.50@69, 50% $75@75.50, immediate, October-November-December.

Portland: Demand slow; trend lower; supply ample; $44, f.o.b. Decatur.

Boston: Demand fair; supply ample; 44% $50.50; 50% $54.50, both bulk, f.o.b. Decatur.

Milwaukee: Demand good; supply fair; $53, bulk, Decatur.

San Francisco: Demand good; supply ample; $79.40.

New Orleans: Demand slow; supply ample; trend steady; $60@61.

Wichita: Demand good; supply fair; 44% $64, 50% $71, f.o.b. Wichita.

Philadelphia: Demand and supply fair; 44% $51.50, bulk, Decatur.

Denver: Demand just fair; trend steady; supply very tight; $73.14, Denver.

Omaha: Demand good; trend strong; supply tight; 44% $59.60, bulk, delivered Omaha.

Ogden: Supply average; $84@89.

Louisville: Demand slow; trend strong; supply ample; $62.20.

Cincinnati: Demand poor; trend higher; supply adequate; $52@53, bulk, Decatur.

Los Angeles: Demand good; trend very firm; supply very tight; $75.40, bulk.

Seattle: Demand fair; trend strong; supply ample; $86, delivered, carlots.

TANKAGE

Omaha: Demand and trend good; supply ample; $82.50.

New Orleans: Demand fair; trend steady; supply light; $92@93.

Ft. Worth: Demand fair; supply short; 60% digester $80, sacked, Ft. Worth.

Wichita: Demand good; supply sufficient; 60% $90, f.o.b. plant.

Cincinnati: Demand fair; trend steady; supply ample; 60% digester $82.50, Cincinnati.

Chicago: Demand fair; trend steady; supply ample; 60% protein $85 ton, carlots, 100-lb. bags.

St. Louis: Demand fair; trend steady; supply adequate; $82.

St. Paul: Demand fair; supply ample; trend steady; $84@86.

Kansas City: Demand fair to good; trend steady; supply adequate for present needs; 60% digester $80, sacked, Kansas City.

Louisville: Demand slow; trend firm; supply good; 60% protein $85@90.

VEGETABLE AND ANIMAL FAT (HYDROLYZED)

Ft. Worth: Demand excellent; offerings limited for nearby shipment; 5¾¢ lb., nominal, f.o.b. north Texas area.

VITAMIN E FEED SUPPLEMENT

Cincinnati: Demand good; trend steady; any quantity in 100-lb. drums $1.50; in 25-lb. drums $1.55; freight allowed to destination.

New York: Demand and supply good; trend steady; 100-lb. drums $1.50 lb., 25-lb. drums $1.55 lb., f.o.b. manufacturing plants, freight allowed and goods insured to destination.

Rochester, N.Y.: Demand and supply good; trend steady; 100-lb. drums $1.50 lb., 25-lb. drums $1.55 lb., f.o.b. manufacturing plants, freight allowed and goods insured to destination.

WHEAT GERM MEAL

New Orleans: Demand fair; trend steady; supply ample; $57@59.

Buffalo: Demand and supply fair; trend steady to higher; commercial grade $58, f.o.b. Buffalo.

Minneapolis: Demand fair to good; supply ample; trend steady; $49.

PENNSYLVANIA

(Continued from page 1)

Mr. Dague told the feed industry representatives that agriculture needed the smallest amount possible of government regulation or supervision. He said that it is a historical fact that each time an industry asked the federal government for regulation, it had to give up something in return. Some of the agricultural programs advanced in Congress, he said, would result in almost 100% regimentation for this country's farmers.

Linear Programming

Simplified techniques, whereby smaller feed mills may take advantage of linear programming in least cost feed formulation, were outlined by Dr. Robert F. Hutton, associate professor of farm marketing, Pennsylvania State University.

Use of a system which requires large scale computing equipment is both easier and potentially of greater usefulness. However, Dr. Hutton and associates have developed simpler techniques for those who wish to use them.

They have a procedure which is adapted to small automatic computers which some firms have in their accounting departments.

Also, the technique has been simplified still further; computation is eliminated in this, but the use of graphs is introduced. A simple analog computer has been designed to be used in connection with this procedure.

The technique using graphs will lead to the absolute least-cost mix only if certain conditions are met. Dr. Hutton said he didn't think there was

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much practical difficulty in meeting these conditions, but further exploration is needed in order to be certain. In any event, he said, he is confident that this is both easier and comes nearer to producing least-cost feed formulas than customary "cut-and-dry" methods.

The Pennsylvania association will investigate the advisability of holding a two- or three-day short course on this for representatives of its member mills if arrangements can be made with the university.

Changes in Dairying

Dairying is Pennsylvania's most important farm enterprise and Joe S. Taylor, dairy science extension specialist at the state university, told the audience of a few changes that have taken place in the dairy industry of that state within the past decade. In 1955, he said, there were 44,000 dairy farms in the state—it is estimated that this number will be down to 35,000 by next year, and down further to 25,000 dairy farms by 1970.

Along with the reduction in the number of dairy farms, has been a steady increase in the number of cows on farms. The figure was 940,000 in 1955, and the estimate for 1960 is 960,000 cows, with 1 million estimated for 1970.

During the past five years, Mr. Taylor said, the number of cows per man has increased from 18 in 1955, to 28 estimated for 1960. By 1970, he said, the cow-per-man average could be up to 40.

Mr. Taylor advised the feed manufacturers that they could be of service to their dairy feed customers by fitting their feeds to the forage the dairyman has available. He cited the results of his group's forage analysis program and said that the average dairyman is prone to over-estimate the nutritive value of his forage. For maximum milk production, Mr. Taylor said, it is important that protein requirements be met either with high-quality forage or feed that makes up for the deficiency in forage protein.

Contract Farming

An explanation of and comments on contract farming and the extent of its development were presented by Dr. L. A. Wilhelm, the Quaker Oats Co., Chicago.

Dr. Wilhelm listed both common and new forms of contracting. These include: contract grazing of cattle and sheep (by day or by gain); contract feedlot operations with cattle and sheep (by day or gain); the pig "motel," contract hog feeding; breeding stock lease, including swine and poultry; the cow pool, with contract milk production; turkey contracting; broiler contracting; hatching egg contracting; market egg contracting.

How widespread is contracting? Dr. Wilhelm gave these figures on the percentages of production accounted for by contracting: cattle slaughtered, 10-20%; lamb and mutton, 25%; hogs, 5-10%; broilers, 90%; turkeys, 75%; market eggs, 5-10%; hatching eggs, 90-95%; milk production, 5-10%.

Dr. Wilhelm outlined reasons why contracting has developed in animal agriculture. He warned that contracting or integration to get larger volume units is not always a solution for the inefficient.

For contracting to be successful in animal agriculture, it must (1) improve quality of product, (2) match more perfectly production to market needs, (3) reduce total or absolute costs.

"Specification production, or producing 'for a market' rather than 'to market,' will become more widespread," he said. "This does not mean that a farmer must or will lose any of his independence, except his independence to produce and sell low quality products. The greatest fear for agriculture today should not be integration and contracts. It should be fear of governmental imposed social control established to hold all men at the average."

Orville E. Hauck, Hauck Feed & Supply, Kutztown, Pa., first vice president of the association, was elevated to the presidency succeeding Mr. Aten.

Other officers named included L. D. Ritchey, Curry Supply Co., Curryville, Pa., first vice president; H. J. Borchert, Huntsinger's Mill, Hegins, Pa., second vice president; C. G. Pritts, Pritts Feed & Supply, Smithton, Pa., third vice president, and John L. Zug. John L. Zug & Son, Inc., Richland, Pa., treasurer.

Donald W. Parke, Ephrata, Pa., newly appointed secretary, succeeds Richard Ammon, who resigned last summer to join the Northeast Poultry Producers Assn.

Attendance at the two-day affair was approximately 200, with the majority being active members of the association.

ARKANSAS

(Continued from page 6)

feed efficiency regardless of protein level. Best feed utilization was on the 14.7% protein diet with supplemental MHA. In the second experiment, addition of methionine did not affect rate or production or feed utilization. It appeared that 14.7% protein was adequate to support maximum production for these pullets, which may partially explain the lack of response to added methionine.

Dr. Harms noted that there were three major differences between the two experiments which may explain some of the differences in results. These included different strains of pullets, different growing diets and higher level of supplemental choline in the second study.

He said use of laying feed with lowered levels of protein with supplemental methionine shows promise, but more research is needed before putting it into practice.

FEEDING PRACTICES IN TURKEY PRODUCTION—Dr. T. T. Milby, General Mills, Inc., Indianola, Iowa: Dr. Milby discussed feeding systems for growing market turkeys and prospective breeders.

He cited research in which use of complete feeds for growing birds, as compared with a high-protein fed free choice with grain, resulted in more uniform development and better feed efficiency. Growth rate has been about equal. Regarding pellets and crumbles, he said there is not as much advantage from textured feeds with turkeys as with chicken broilers since the advantage of faster early growth sometimes disappears before the birds reach maturity. However, textured feeds are less subject to waste.

Dr. Milby also mentioned use of tables which show feed required to produce each additional pound of gain. This is important in determining when to sell birds in order to get the best profits.

Dr. Milby outlined results of restricted feeding of prospective breeders through restriction on amount of feed or use of a high-fiber feed. The latter method has resulted in less gain than with unrestricted hens but has increased cost. After reporting other findings, too, Dr. Milby noted that subsequent egg production and hatchability were not influenced by the previous treatment of the birds so no particular advantage was gained.

PELLETING RESPONSE IN BROILER FEEDING—Dr. Douglas Hamm, University of Arkansas: Dr. Hamm reported that on the basis of recent tests at the University of Arkansas "it is felt that pelleting exerts no beneficial or harmful chemical effect on broiler diets." He said the beneficial effects appear to be due only to the fact that the chickens eat more and have more nutrients available for growth after daily maintenance requirements are satisfied. Likewise, better feed utilization is obtained for the same reason.

Among the reasons advanced as to why pelleting is beneficial, he said, are: A complete ration in every bite, less waste because pellets can be picked out of the litter, a change in density and some chemical change in the ingredients. Dr. Hamm referred to Washington and other studies in which it was found that pellets ground to the consistency of the original mash produced a growth response intermediate between mash and pellets. This effect, it was reasoned, must be due to some beneficial chemical effect.

"If pelleting does produce some beneficial chemical process," Dr. Hamm commented, "it may then be reasoned that if chicks consume equal amounts of pellets or mash their growth rates will be uneven."

Mash, pellets, crumbles and ground pellets were compared in a University of Arkansas free choice test, and it was found that chicks on pellets ate more feed and gained more weight than birds on mash. Chicks on crumbles seemed to decline in growth toward the end of the feeding period, which, according to Dr. Hamm, might have caused the poor feed utilization. He reported that from an efficiency standpoint chicks fed ground pellets grew slower because of decreased feed consumption.

In another test, the same four forms of feed were used, but the birds were limited in their daily intake to the amount consumed the previous day by the birds fed mash free choice. The result was a difference of only 8 gm. between the highest (pellets) and the lowest (crumbles) weight average for 55-day-old chicks.

VITAMIN A IN ANIMAL NUTRITION—Dr. W. F. Crawford, Chas. Pfizer & Co., Inc.: Some supplemental vitamin A is required in most feeding situations, even though the recommended level of supplementation varies between nutritionists, according to Dr. Crawford.

He noted that even though the role of vitamin A in nutrition has been fairly well elucidated, confusion continues over biological availability of various forms of vitamin A and it has been suggested that there may be no real differences.

Dr. Crawford went on to review the measures of biological availability which are used.

He noted that there is considerable information on comparative availability of various forms of the vitamin, including vitamin A alcohol, acetate, palmitate and natural esters. The physical form of vitamin A and the carrier also have been shown to influence availability.

All of the stabilized, vitamin A products show better stability than the unstabilized, he said, but the products are quite variable in their stability characteristics under use and storage conditions. In general, he said, the stabilized concentrates in dry carriers are not coated with protective material and although the stability in most feeds is improved, the mineral stability is less satisfactory. The purity of the vitamin A may be a factor, too. Possibly some impurities serve as prooxidants for the vitamin.

THE CHOICE OF AN ANTI-COCCIDIAL—Dr. E. H. Peterson, department of animal industry and veterinary science, University of Arkansas: The speaker defined the properties of a good anti-coccidial drug for broilers as follows:

(1) Must give complete protection against coccidiosis due to Eimeria tenella (cecal coccidiosis), and Eimeria necatrix (intestinal coccidiosis). Treatment for the control of outbreaks should never be necessary. Protection against other species as Eimeria maxima and Eimeria acervulina desirable but not vital. (2) Must be palatable and not impair growth rate or feed conversion. (3) Should blend well and must be stable. (4) Must be compatible with other feed ingredients. (5) Should not be electrostatic or hygroscopic.

Dr. Peterson said the requirements for a good anti-coccidial for replacement stock are in general the same as those listed for broilers, with the following exceptions: (a) Must protect against death losses from cecal and intestinal coccidiosis and, at the same time, permit the rapid development of immunity against the two diseases. Preferably should be inactive against E. acervulina, the cause of laying-house or pullet coccidiosis. (b) Must not impair any phase of reproductive performance.

The speaker listed the commonly known anti-coccidials in descending order of activity against E. tenella and E. necatrix as follows: (1) Nicarbazin, Zoaline, Glycamide; (2) Polystat—Unistat; (3) Arzene, and (4) Trithiadol—Bifuran.

"Nicarbazin, Zoaline and Glycamide are very highly active against both E. tenella and E. necatrix, the suppression of both parasites approaching 100%. The choice between the high-powered anti-coccidials would have to be made on the basis of factors other than anti-coccidial effect," Dr. Peterson said.

"Polystat and Unistat are also highly protective against E. tenella, but not quite so active against E. necatrix as the first group.

"Arzene is likewise highly active against E. tenella, its activity approaching that of the above-named drugs, but possesses only moderate activity against E. necatrix. A drug of this nature might be quite suitable for the control of coccidiosis under arid or dry conditions, which circumstances are less favorable for the development of intestinal rather than cecal coccidiosis.

"Trithiadol and Bifuran are only moderately active against both E. tenella and E. necatrix.

"Regarding the choice of an anti-coccidial, other factors being equal, a drug with the greatest suppressive activity possible is preferred for broilers. Less strongly active drugs, however, are more suitable for replacement stock since the very strong drugs in general interfere with the development of immunity.

"The development of immunity is not desirable in broilers, but is essential for replacement stock. Immunity can only develop in consequence of recovery from an attack of coccidiosis."

The speaker also discussed controlled immunity through administration of a "Cocci-Vac," and said that considering all factors, this is a procedure with a great deal of merit for the control of coccidiosis in replacement stock.

He noted that sulfaquinoxaline is still the anti-coccidial of choice in the control of coccidiosis in turkeys.

ANTIBIOTIC POTENTIATION AND APPLICATION IN THE CONTROL OF CHRONIC RESPIRATORY DISEASE—Dr. E. H. Peterson, University of Arkansas: Dr. Peterson noted that antibiotic medication of the intestinal tract in poultry is used for the control of specific infectious diseases such as blue comb disease, quail disease, hexamitiasis and vibriosis; to maintain appetite and control diarrhea during stress periods, and for the "improvement" of egg production.

He said that for these uses, all the

HOG PRICES LEVEL OFF ON MARKETING CUT-BACK

CHICAGO—The top price for hogs Oct. 1 was still at the lowest level since March, 1956, but further decline apparently was halted as producers cut back marketings.

The Oct. 1 top was $13.50 and most of the supply of 190-280-lb. animals brought $13 @ 13.40. The smallest Thursday marketings in seven weeks (only 59,000 hogs) were put on sale at 12 major markets.

Hog prices have reached the break-even point for many farmers, according to livestock men, who say that further declines would result in losses for producers.

Chicks Placed in Principal Broiler Areas

(000's omitted)

Week ending	Maine	Conn.	Penn.	Ind.	Ill.	Mo.	Del.	Md.
July 25	1,212	629	690	878	108	865	1,625	2,001
August 1	1,160	614	718	797	111	845	1,550	1,898
August 8	1,163	470	673	736	130	857	1,573	2,033
August 15	1,054	485	757	791	103	815	1,742	1,782
August 22	980	420	859	767	138	805	1,607	1,967
August 29	1,048	469	714	710	100	768	1,569	1,934
September 5	1,061	427	774	604	156	724	1,326	1,871
September 12	838	352	724	633	111	627	1,419	1,718
September 19	407	402	667	622	106	557	1,179	1,871
September 26	817	346	590	571	121	598	1,125	1,827

Week ending	Va.	W. Va.	N.C.	S.C.	Ga.	Fla.	Ala.	Miss.
July 25	1,272	515	2,764	354	6,298	187	3,295	2,214
August 1	1,026	484	2,576	331	6,033	144	3,177	2,132
August 8	1,116	445	2,551	348	5,807	158	3,098	2,045
August 15	1,009	528	2,660	292	5,730	177	2,973	2,169
August 22	1,060	463	2,581	272	5,370	205	3,019	2,035
August 29	1,001	486	2,396	303	5,331	170	3,034	1,780
September 5	984	467	2,405	263	4,812	213	2,906	1,664
September 12	896	386	2,355	257	4,668	234	2,568	1,618
Setptember 19	688	374	2,089	267	4,537	168	2,596	1,689
September 26	739	296	2,186	272	4,452	179	2,405	1,675

Week ending	Ark.	La.	Texas	Wash.	Oregon	Calif.	Total 22 areas 1959	Total 22 areas 1958
July 25	3,597	423	2,142	303	237	1,017	32,626	33,378
August 1	3,358	379	2,250	287	213	913	30,996	32,440
August 8	3,287	374	2,014	335	165	959	30,337	32,003
August 15	3,077	413	2,073	340	186	878	30,034	31,232
August 22	3,024	366	2,028	292	161	888	29,307	30,025
August 29	2,869	391	1,975	277	200	800	28,325	28,883
September 5	2,769	366	1,870	317	121	839	26,939	28,117
September 12	2,657	318	1,895	282	177	852	25,585	27,265
September 19	2,648	308	1,711	244	107	726	23,963	25,781
September 26	2,554	327	1,689	194	160	916	24,039	25,502

feed grades of commercially available antibiotics (Aurofac-10, Tm-10, Gallimycin, Pro-Strep) may be regarded as more or less equal, and optimum intakes are in the order of 50-100 gm. per ton, the only exception being blue comb disease in poults, which requires a higher intake level. Antibiotic potentiators should not be used.

The speaker said that antibiotics are used in systemic medication for PPLO (CRD) control, infectious synovitis and ornithosis. He said that important considerations in the choice of an antibiotic for these uses include relative absorption rates from the intestinal tract into the blood stream (no two antibiotics will be absorbed at the same rate), and the extent to which the antibiotic responds to the two known potentiating systems, the inclusion of terephthalic acid in the ration, and the total or partial exclusion of calcium salts.

"Streptomycin," he said, "is not absorbed and may be eliminated at this point. Aureomycin, Terramycin and erythromycin are absorbed in varying degrees, and all respond in a measurable degree to the potentiating system. The response, however, of erythromycin is slight."

Dr. Peterson also discussed the relationships of Aureomycin and Terramycin, reporting the former more effective, and he went on to outline programs using Aureomycin and potentiation with TPA for control of CRD in broilers. One of the programs included temporary removal of calcium carbonate and the anti-coccidial.

He noted that TPA has not yet been approved for general use, although it may be used in a limited way experimentally.

"The downgrading of the calcium content of the feed helps a great deal," he said, "but only through the combined effect of lowered calcium plus TPA can a program be devised which is highly effective and can still be borne by the economic structure of the broiler industry as it exists today. There is imperative need that TPA be made available to the poultry industry within the shortest possible time."

PROCESSING OF WHOLE SOYBEAN MEAL FOR FEEDING TO CHICKS—Dr. E. L. Stephenson, University of Arkansas: Experiments at the University of Arkansas were conducted to study methods of processing the whole soybean to render it acceptable in broiler feeds.

Investigators have known for many years that the soybean contained a trypsin inhibitor which must be destroyed before the material could be satisfactorily fed to poultry, Dr. Stephenson pointed out, adding that in the processing of soybean oil meal, this is done by supplying moist heat in a manner such that the inhibitor is destroyed without appreciable destruction of protein. The research at the University of Arkansas was initiated to study modifications of these processes which would be necessary when applied to the whole soybean.

Soybeans were prepared by grinding, crimping and flaking. Added levels of water from 0 to 30% were then incorporated, and the resulting mixture subjected to levels of steam pressure ranging from 0 to 10 lb. Cooking times varied from 0 to 90 min. The resulting materials were then dried in vacuo and incorporated into the experimental diets.

Dr. Stephenson said an analysis of the data revealed that flaking of the beans resulted in a superior product. The optimum temperature and time of cooking were found to be 30 min. at 6 lb. of steam pressure. Optimum water addition was 30%.

The speaker said that when the materials were prepared in the above manner, the product produced, in most cases, an increase in growth, and a resulting increase in efficiency of food utilization. The latter was more consistent than the former.

It was also found that diets containing higher levels of fat could be pelleted when the fat was added in the case of the whole processed soybean, rather than when the fat was added to soybean oil meal or to the entire diet.

WHICH ANTIBIOTIC FOR SWINE?—Dr. Paul Noland, University of Arkansas: Dr. Noland outlined results of a recent Arkansas study of antibiotics and also summarized some 30 other tests during the past two years at midwestern stations.

"Undoubtedly," he said, "the response obtained from antibiotics is contingent, in part at least, upon the existing disease level on the farm and the predominant type of organism present. Based on a number of recent trials, it would appear that a combination of antibiotics (tetracycline, zinc bacitracin and penicillin) has produced greater growth response than the antibiotics fed singly.

"In an Arkansas test a combination of zinc bacitracin and streptomycin produced a greater improvement in rate of gain than either oxytetracycline or zinc bacitracin and neomycin.

"Continued tests will be necessary to evaluate which antibiotics and combinations are most potent in improving rate and efficiency of gain. If past experience is an indication of what the future holds, no one antibiotic or combination of the currently used antibiotics will always remain the most effective."

HOW MUCH MEAT OR FISH PROTEIN FOR SWINE?—Dr. D. E. Becker, University of Illinois: Dr. Becker noted that recent studies have failed to demonstrate that a fortified 16% protein ration of corn and soybean oil meal is improved by additional methionine. Likewise, he said, additions of meat and bone scrap, fish meal, dried skim milk, dried corn distillers' solubles, alfalfa meal, condensed fish meal and other feed ingredients have failed to improve the same ration.

He described soybean meal as an outstanding source of supplementary amino acids for feeding swine because its distribution of lysine, tryptophan and methionine is much like that required to supplement corn.

Dr. Becker reported that evidence indicates that amino acid supplements like meat and bone scrap or fish meal "are not essential for maximum performance in a properly balanced swine ration," but added, "Of course, such supplements may be used as price differential warrants. However, the economy of these supplements must be determined on the basis of their ability to provide the essential amino acids rather than protein or vitamins."

SUPPLEMENTARY AMINO ACIDS FOR SWINE—DO THEY PAY?—Dr. Becker: Research at the University of Illinois on crystalline amino acid additions indicates, according to Dr. Becker, that "in order to replace half of the supplementary protein (soybean meal), additions of lysine and methionine are essential. He said complete replacement of the supplementary protein requires additions of at least lysine, tryptophan and methionine, and perhaps other amino acids such as isoleucine and threonine are needed."

"Calculations show," he said, "that at present prices of supplementary proteins and crystalline lysine and methionine, additions of these crystalline amino acids to swine rations are not an economical practice.

Dr. Becker commented that corn, as the basic ingredient of swine rations, supplies a considerable portion of essential amino acids, but relative to need it is deficient in all essential amino acids, except arginine and leucine.

FEEDING THE BROOD SOW—Dr. K. W. Scott, University of Arkansas: Dr. Scott said that recent research findings at the University of Arkansas show that the nutrition of the brood sow during gestation is not merely that of supplying adequate nutrients, but also one of not supplying too much energy.

"Sows with their energy intake limited weaned between 1 and 2.25 more pigs than full-fed sows. Self et al. found that the age of puberty was decreased under limited feeding regimes, and in two experiments found that the embryonic survival was 32 and 53% for full-fed sows, compared to 57 and 80% for limited fed sows. Gossett and Sorenson also reported similar results. A sow or gilt should not gain over 1 lb. per day during gestation, depending on her condition," Dr. Scott said.

He went on to outline the ration requirements of sows.

EFFECTS OF RATIONS FED ON CARCASSES OF BEEF STEERS—W. T. Wallace, University of Arkansas: In this experiment the four rations fed were milo, corn, barley and a mixture of equal parts of milo, corn and barley. At the end of the 252-day feeding period the steers were shipped by truck to a packing plant where, after slaughter, the qualities of carcasses produced by the rations could be studied.

Mr. Wallace reported that the results indicated that barley and corn produced very similar carcasses, with the average carcass grade being slightly higher for the barley group.

Steers fed milo were intermediate in carcass grade, and steers from the lots fed a mixed ration were lowest in carcass grades, Mr. Wallace said. Dressing percents were essentially the same for all rations.

Steers fed corn had slightly lower "in transit" shrink than other groups, although differences between lots were very small, the speaker said. No differences were observable in color of fat, color of lean and degree of marbling between rations.

The barley ration performed best pounds of gain produced per pound of feed, with corn second.

INFLUENCE OF GRAIN PREPARATION ON PREFERENCES SHOWN BY BEEF CATTLE—Dr. Maurice L. Ray, University of Arkansas: Dr. Ray said that with one of the major problems in fattening cattle being to get sufficient voluntary feed intake to insure maximum gains, studies have been conducted at Arkansas to attempt to measure differences in preferences exhibited by beef animals for grains and supplements subjected to several methods of preparation. Three grains—corn, milo and oats—were compared as the only grain. The preparations were whole, coarsely ground, finely ground, pelleted and ground pellets.

The researcher reported that highly significant differences were observed in consumption due to preparation. Finely ground grains were consumed in smaller quantity than whole or coarsely ground preparations. Pellets were more preferable than ground pellets.

Oats were more preferable than corn or milo, as indicated by a higher consumption. Even though more oats were eaten, less time was spent per pound consumed than for milo or corn, although differences were small.

Ground pellets and finely ground grains were seldom given a first-choice rating by the calves, and were generally consumed in smallest amounts, the speaker concluded.

EFFECT OF PELLETING, GRINDING AND PREPARATION OF CONCENTRATES FOR DAIRY CATTLE—Dr. O. H. Horton, University of Arkansas: Dr. Horton reviewed research in this field and cited some studies in which coarsely ground grain was superior to finely ground grain for lactating dairy cows. Another report indicated barley ground to a granular condition was superior to finely ground or whole barley. Still another report indicated no advantage from coarse-textured feeds over those ground in the usual manner.

Dr. Horton went on to cite a report on fine, coarse, very coarse and pelleted grains for dairy cows. With one exception, the fine textured mixture excelled the other three in digestibility and utilization of protein and energy.

After summarizing other work, too, Dr. Horton said there is no satisfactory evidence that pelleted feeds fed to dairy cows are more nutritious per pound of material consumed than those fed without such processing. The use of pelleted feeds, he said, appears to have advantages other than digestibility or rate of consumption which may warrant their use. Some of the factors are reduced loss from dust and wind, ease of feeding, palatability and less bulk. The one exception referred to above was that the fine mixture and the pellets gave essentially the same daily energy balance, digestibility of dry matter, ether extract, fiber and nitrogen-free extract.

ROUGHAGE CAPACITY AND EFFICIENCY OF FEED UTILIZATION IN DAIRY CATTLE—Dr. O. T. Stallcup, University of Arkansas: In discussing the dairy cow's efficiency in relation to feed utilization, Dr. Stallcup said one of the main areas in which more information is needed is the difference between cows in their inherent capacity for consuming nutrients.

He cited data which indicated that increased total digestible nutrient consumption, brought about by increased grain allowance, tends to increase milk yields, but at decreasing increments with successive feed units in accordance with the principle of diminishing increments.

"Bloom et al. have studied the influence of various hay-concentrate ratios on nutrient utilization and production responses of dairy cows. They observed that the ability (genetic effect) of the animals exerted a greater influence upon production than did the intensity of feeding," he concluded.

MARKETS

(Continued from page 2)

About the only fairly bright spot in the picture is the cattle feed segment of the industry. There has been some seasonal pickup in sales, but, of course, these are for forward shipment, the very early winter as a rule.

Hog feeds are moving in a draggy way. While there is a large fall pig crop in sight, corn is cheap and a tremendous crop, over-shadowing the increased size of the pig crop, is available. Top price on hogs so far this week in Chicago is down to $13.50 cwt., which represents a drop of $1.50 from the point at which the top level seemed to have been fairly well stabilized some months back. Naturally, this cannot help but have something more than a psychological impact on the hog feed end of the formula feed industry.

Call for poultry feeds, especially the type used for laying flocks, is at a low ebb. While egg prices have staged some comeback, recuperation in this respect could be much more substantial than it has been. In addition, there is a strong probability that the liquidation of laying flocks that took place earlier in the year has left a definite impact on the demand from commercial feed manufacturers.

South Central

Nothing out of the ordinary developed in the formula feed trade in this area this week. Business moves along at about the same level as it has been going, showing limited improvement over that of early September but nothing to get enthusiastic about, according to mill representatives.

The general opinion is that October business will show an increase over that of September but few expect a good upturn to begin until steer feed demand develops. Encouragement is being taken from the interest shown in booking offers, but dealers, in many cases, are delaying commitments until nearer the time that the feed will be used. With fairly good pasturage available and a plentiful supply of feed grains on hand, cattle feeders are in no hurry to buy steer supplements.

The average of business coming in is about four and one half days. Some mills have noted a slight pick-up in carlot demand, but not enough to build up any backlog of orders. Running time remains on a hand-to-mouth basis.

Ohio Valley

A very slight improvement in sales of formula feeds was noted during the last week in the Ohio Valley, although the upswing was so slight that production schedules were unaffected. Business was definitely spotty, with manufacturers reporting that demand for some feedstuffs was up considerably, while off for other types of feeds.

As elsewhere, the prolonged steel strike is having its effect on consumer buying in many cities along the river, and this business paralysis will from now on increase rapidly as more and more manufacturing plants, dependent on steel, are forced to close down as their reserve supplies of the metal become exhausted.

Hurricane Gracie in the Atlantic Ocean is affecting weather conditions in the Ohio Valley by drawing off the predicted plentiful rainstorms, thus leaving the valley area in a continuing drouth situation. Only 2.12 in. of rain fell in August and less than an inch in September.

Fortunately, most of the harvesting of fall farm crops is now nearing completion, so the outlook for October rainfall is not too important, except for the added labor of hauling water for farm animals. Normally, October is the driest month of the year in the Ohio Valley and the weather bureau has predicted that this month will likely set a record for dryness.

Mountain States

This week's formula feed sales volume was greatly increased over the previous week, and it was up a great deal from the same time a year ago. The primary reason for the increase is the greater numbers of cattle in feedlots. Also, range cattle feed business has picked up, largely due to the early snow which fell in this region during the week.

Turkey feed volume is continuing on a decline, and it is expected to continue at this level for some time.

Almost all of the formula feeds being purchased now are for immediate sale. Very little is earmarked for inventory build-up because plants in this region are not big enough for storage, and most dealers operate on a hand-to-mouth basis.

California

Cooler weather and higher egg prices boosted poultry feed and egg mash business this week. Reports indicated a 10% rise from the hot September of 1958 and a 5% upturn from the previous week.

Turkey feed business is easing slightly as movement of birds to market begins to step up. Best market demand presently is for large toms. The hen market is draggy.

Dairy feed business continues steady with the swing from barley to milo in dairy feed formulas of note. Demand for cattle feed remains at all time high. The cattle population in California commercial feed yards is up slightly from last week, keeping in the area of 550,000 head.

Pacific Northwest

Portland and Seattle mixers reported this week that rainy, cool weather increased demand for formula feeds, which, in general, moved in larger volume.

Buying by feeders and mixers continued to be for prompt and immediate needs, but there was more indication that some buyers were anticipating forward requirements through October.

Pacific Northwest feed ingredient prices continued to follow a mixed trend during the week when a broader demand for most items was reflected by a slightly stronger tone in the face of a $5 ton advance for soybean meal.

Pacific Northwest alfalfa hay prices covered a wider range due to quality factors following recent rains and the general range on good quality offerings appeared $1 ton higher.

Alfalfa Association to Meet in Toledo Oct. 16

TOLEDO, OHIO—The Alfalfa Processors Assn. fall meeting will be held here in the Hillcrest Hotel Oct. 16, according to a recent announcement.

The agenda will include a board meeting, dinner and a movie entitled, "Alfalfa in the Age of Automation."

The main speaker at the meeting will be Dr. M. P. Plumlee, associate professor of animal science, Purdue University, after which Joseph Chrisman, executive vice president, American Dehydrators Assn., will conduct a business meeting.

FEED STORE SOLD

FLORENCE, ORE.—Western Lane Feed & Seed here has been sold to Don E. Moss, Cottage Grove, Ore.

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The 1960 Honegger Layer

Honegger Layers are bred, raised and tested and controlled with one thought in mind . . . the very maximum in economic traits . . . more dollar income. Dealers know that where poultrymen have Honegger Layer Flocks, they can depend upon more high quality eggs.

HONEGGER LAYER RESULTS . . . results of National Egg Laying Tests, Random Sample Tests and On-The-Farm Performance Tests prove their money-making ability. For example: In the 1957-1958 Texas Random Sample Test, Honegger Layer entries averaged 97.1% A Grade or better for all eggs laid . . . and at the same time ranked FIRST in Interior Quality. In the latest three year summary of the 6th, 7th and 8th Central New York Random Sample Test, Honegger Layers ranked FIRST in Egg Quality.

Here's what J. T. Russell, Egg Buyer of Tulsa, Oklahoma, says, "In buying eggs for my business I have yet to top the quality and excellent shell texture and size of the Honegger eggs." Do as J. T. Russell does . . . assure yourself of top quality eggs . . . buy eggs produced by the Internationally famous Honegger Layer.

Consistently good year after year

HONEGGERS'

HONEGGER Layers

BREEDER HATCHERY

FORREST · ILLINOIS